ADEMCO **INSTALLATION INSTRUCTIONS**

No.4160-12 C-COM
Control/Communicator

INDEX:

	PAGE
General Information	2
I. Introduction	2
A. System Characteristics	2
B. Zone Inputs	3
C. System Options	3
. Control Options	4
. Communicator Options	7
II. Functional Description	9
A. Functional Description, No. 4160-12 C-COM	9
1. Switches	9
2. LED Indicators	10
B. Functional Description, No. 4165 Siren Driver	10
C. Functional Description, No. 5321 Security Console	10
1. Keypad, LEDs and Message Displays	10
2. Audible Signals	13
D. Functional Description, No. 5314 Remote Keypad	13
1. Keypad and LEDs	13
2. Audible Signals	14
E. Functional Description, No. 9787/9789 Remote Key Arming Station.	15
III. Communicator Operation	15
A. Line Seizure	15
B. Anti-Jam	16
C. Dial Tone Detection	16
D. PROM Calling Options	16
E. Acknowledge Wait PROM Options	17
F. Transmission Format PROM Options	17
G. Message Verification PROM Options	17
H. Ademco Low Speed Reporting Format	17
I. Ademco High Speed Reporting Format	19
J. Sescoa/Radionics Reporting Formats	22
IV. Installer PROM Programming	23
A. Control PROM	24
B. Communication PROM	30
V. Installation and Wiring	36
. Installation and Wiring, No. 4160-12 C-COM	36
A. Terminals	36
B. Additional Connection Posts	41
. Installation and Wiring, No. 5321 Security Console	42
. Installation and Wiring, No. 5314 Remote Keypads	43
VI. System Checkout	45
VII. Operation	48
VIII. Turning The System Over to User	51
IX. General Specifications	52
X. Diagram 4: No. 4160-12 Control/Communicator	54
XI. Diagram 5: No. 4165 Siren Driver	54
XII. Diagram 6: No. 5321 Security Console	55
XIII. Diagram 7: No. 5314 Remote Digital Keypad	55
XIV. Diagram 8: No. 9787/9 Keyswitch Arming Station	56
XV. Diagram 9: Summary of Connections	57

GENERAL INFORMATION:

The No. 4160-12 Control/Communicator is a microcomputer based product which conveniently combines the control panel and digital communicator into one package. This commercial-residential system provides every important feature required for a UL certified household fire/burglary alarm installation.

A typical system installation includes a No. 4160-12 C-COM, an optional No. 4165 Plug-In Siren Driver, one or two No. 5321 Security Consoles, optionally (up to four) No. 5314 Remote Keypads, and optionally (up to four) No. 9787/9789 Remote Key Arming Stations.

The No. 4160-12 C-COM monitors all inputs and generates appropriate output signals for interior and exterior audible warning as well as for remote communication to a central alarm monitoring service.

The No. 4165 Siren Driver is an optional plug-in module that provides the capability to drive an 8 ohm siren speaker with up to 25 watts of sound power with separate sound outputs for fire and burglary/emergency. In addition, two separate format pair combinations are programmable for this driver.

The No. 5321 Security Console(s) provide full system and individual zone status indication as well as system control. With the No. 5321, the system may be completely armed or just perimeter armed or disarmed. The entry delay may be turned off, zones may be shunted, and a user security code may be changed. Three types of emergency alarms may be triggered (fire, silent or audible police alarm, and optional audible emergency). A built-in speaker provides audible alarm, trouble, and annunciator functions. The keypad is illuminated for nighttime convenience.

The (optional) No. 5314 Remote Keypad(s) permit most of the keypad functions of the No. 5321 to be performed except for the panic alarm triggers, as well as providing limited display and audible annunciation for modes, trouble, alarms, and shunts.

The (optional) No. 9787/9789 Remote Key Arming Stations permit remote complete (AWAY) arming and disarming of the system as well as providing arming/disarming status indication. The system may also be force armed from these locations if one or more zones are faulted.

I. INTRODUCTION

A. System Characteristics

1. Six independent zones which may be configured in a variety of ways.

2. Up to five burglary zones (including one day trouble zone), two panic zones, and one fire zone.

3. Console digital numeric display of the zone identification for alarms, alarm memory, and trouble conditions.

4. Two Keypad arm/disarm codes - master code PROM selectable and secondary code user changeable from keypad (each uniquely reported to central station with open/close reports).

5. Individual Zone bypass from the keypad.

6. Chime mode, duress code, forced arming - additional keypad functions.

7. PROM variable entry/exit and alarm sounder activation delay, alarm sounder timeout, and delayed AC supervision reporting.

8. Alarm Relay and optional plug-in siren driver outputs for audible alarms.

9. Arming status output with programmable polarity for control of motion detectors.

10. Zone LEDs at the C-COM to indicate the status of each zone.

11. AC Power LEDs at the C-COM and Security Console to indicate that AC power is available and the battery is being charged.

12. Fire Test Switch to check the fire system functions.

13. Multi-format communicator (Ademco Low Speed, Ademco High Speed, Sescoa, Radionics Superfast).

14. Touchtone or pulse dial call placement.

15. Touchtone or pulse tone data transmission.

16. Dual phone number calling with separate independent subscriber ID.

17. Double transmission verification or single transmission with check sum verification.

18. All reporting by zone for alarms, troubles, restores, shunts.

19. Low battery and AC power fail reporting.

B. Zone Inputs

1. Zones 1-3: Burglary

   Zone 1 and 2: Perimeter or Entry/Exit - PROM selectable
   Zone 3: Interior with or without Entry/Exit delay - PROM selectable

2. Zone 4: Fire, Day Trouble Burglary, or Standard Burglary - PROM selectable

3. Zone 5: Police Panic (Audible or Silent) - PROM selectable

4. Zone 6: Burglary or Audible Emergency Panic - PROM selectable

C. System Options

The system can be configured in a number of ways. This allows the user to customize the system for his own particular needs. Before actually making the choices which affect how the system operates (See Section II, Installation), it is important to understand the

options. The discussion that follows broadly divides those options into two categories: control options and communicator options.

CONTROL OPTIONS:

1. **Entry Delay, Exit Delay**

   The entry delay is the time between entering the premises and when the system must be disarmed to avoid activating an alarm. The exit delay is the time between arming the system and when the premises must be exited to avoid activating an alarm. The entry and exit delays may be independently PROM selected to be between 0 and 135 seconds in 15 second increments.

2. **Exterior Sounder/Primary Communicator Delay**

   The system may be set up to delay the activation of the exterior bell and/or siren (optional plug-in 4165 siren driver module required). In addition, triggering of the communicator may be additionally delayed. This feature may be used to reduce false alarms due to operator errors. The delay may be set in PROM between 0 and 135 seconds in 15 second increments, but applies only to those zones that have the delay feature enabled (See No. 15).

3. **Bell/Siren Timeout**

   Bell/Siren audible indication may be PROM selected to last between 0 and 36 minutes in 4 minute increments, after which it "times out".

4. **AC Power Loss Timer**

   To eliminate nuisance power failure central station and local audible reports, the system may be PROM programmed to ignore short duration outages. This delay in reporting an AC loss condition may be set between 0 and 36 minutes in 4 minute increments (As an example, if a timeout period of 16 minutes was selected, power outages of less than 16 minutes will be ignored - the POWER LED will extinguish immediately, however).

5. **Entry/Exit Zone Selection**

   The system allows a choice of zones that may be set up with entry/exit delay. Zones 1, 2, and 3, individually or in any combination, may be set up in PROM as entry/exit zones (For example, if the interior zone [zone 3] were set up with space protection, choosing an entry/exit delay on this zone would allow space protection devices to include the entry door in their area of protection which is to say, they could be held off during the normal entry/exit period).

6. **Fast Response Zone Selection**

   Fast (15 msec) response is used for certain devices (such as glass break detectors and some photoelectrics) that cannot be used with a normal (250 msec) response zone. Fast response can be PROM designated for zones 2, 3 and 4, individually or in any combination.

7. **Zone 4 Type Selection**

As shipped, zone 4 is configured as a standard burglary zone. Hbwever, it can also be configured in PROM as either a fully supervised Fire Zone or a 24 hour day burglary zone (during disarmed period, a trouble indication is communicated and audibly sounded if the loop is opened or shorted; a burglary alarm is triggered if the loop is opened or shorted during armed period).

8. **Zone 5 and 6 Options**

As shipped, zone 5 is configured as a silent panic zone, zone 6 as a burglary zone. Optionally, zone 5 and/or 6 may be configured in PROM as audible panic zones. In addition, if zone 5 is set up as a Silent Panic Zone, console display of both the panic condition as well as the activity of the communicator may be inhibited. (For example, if zone 5 is set up as a silent medical emergency zone, the user would want an indication that the alarm has been triggered, however, if the zone 5 is intended for hold-up use, the display would not be desirable).

9. **Miscellaneous PROM Selectable Control Options**

a) **Alternate Siren Sounds:**

As shipped, the system will give the following sounds: Steady rapid two-tone (Electronic bell) for Burglary/Panic; interrupted rapid two-tone for fire. Optionally, steady slow two-tone for Burglary/Panic may be PROM selected.

b) **Alarm Sounder "Ding" Confirmation of Arming:**

When PROM selected, this option will cause a 1/2 second "Ding" of the exterior bell and/or siren at the end of the arming sequence. If the communicator has been set up to send opening and closing reports, the "Ding" will occur when the communicator has received a kissoff on a closing report. If opening/closing reports are not used, the "Ding" will occur when the exit delay period has expired.

c) **Arming Status Polarity:**

The system has an output at TBI-1 that may be used to indicate the arm/disarm status of the system to other devices (for example, space protection). As shipped, the system will give the following output:

+12 volts when armed
0 volts when disarmed

Optionally, the polarity can be PROM be reversed to give:

0 volts when disarmed — suitable for Ademco 12 volt and AC powered

+12 volts when armed space protection devices.

10. **Duress Digit**

The duress digit is a change to the last digit of the security code. Its purpose is to allow someone to initiate a silent panic condition but still give the impression that the control is working normally. For example, if the security code is 1234 and the duress digit is 5, entering 1234 will cause the system to disarm, but entering 1235 (assuming one is in a hostage situation) will cause the system to disarm, but will also trigger the communicator to send a silent panic message.

NOTE: If the user of the system inadvertently programs a secondary security code that is the same as the master code, but has the same last digit as the PROM programmed duress digit, the duress silent panic capability is suppressed to avoid the transmission of false alarms to the central alarm monitoring service.

11. **Security Code**

This 4 digit code restricts the use of the system to only those who know the code. Any digits, including repetitions, may be chosen. There are two such codes. One is PROM programmed at installation and the second is user changeable from a keypad at any time, using the master code to enable the change.

12. **Forced Arming Enable**

Forced arming allows a user to arm the system even though certain zones are in a faulted condition. Such faulted zones will be shunted by depressing BYPASS to override the fail safe arming during the arming period. Forced arming must be PROM enabled for each zone in which it is desired (with critical zones, such as safes for instance, arming of the system should be prevented when a faulted condition exists).

13. **Bypass Enable**

Zones in the system may be individually bypassed from the Security Console or Remote Keypad during the disarmed period. This option allows the user to bypass zones that should be ignored, whether or not they are faulted at arming time (In this manner, "Swingers" may be ignored or a loading dock door that must be later opened can be left unsecured). To allow individual zone bypass, each such zone must be PROM enabled for this option.

14. **Zone Restore Enable**

As shipped, the system has all zones set up as non-restore zones. Non-restore means that once a zone has gone into alarm during the arming period, subsequent faults of that zone will not trigger a new alarm. The zone is effectively "locked-out", preventing multiple false alarms in the event of a "Swinger".

Zones that have been PROM selected as restore zones will allow the bell/siren to sound more than once if the zone returns to normal and faults again after the bell/siren has timed out.

15. **Alarm Sounder Delay Enable**

The "Exterior Sounder/Primary Communicator Delay" was explained as option #2, above. PROM option 15 is simply the choice of burglary zones for which exterior sounder delay is desired. It should be noted that the delay does not apply to zone 4 if it is set up as a fire zone nor to zones 5 or 6 (if set up as panic).

COMMUNICATOR OPTIONS:

1. **Communicator Enables**

The system may be PROM programmed to transmit any combination of the following messages:

a) **Open/Close Reports**

A closing report, if enabled, will be sent whenever the system is put in the AWAY mode. The STAY mode will not generate a closing report.

b) **Zone Shunt Reports**

If PROM enabled, the system will report all shunted zones to the central station. These shunt reports will take place at the following times.

1. Whenever a 24 hour zone (fire, panic, etc.) is shunted.
2. Burglary zones will report shunting at the time of arming.
3. When the zone shunt is removed, a shunt restore message will be sent for 24 hour zones (burglary zones will not send shunt restore reports as an open report automatically signifies shunt restore for these zones).

c) **Zone 4 Trouble Reports**

The system will transmit a trouble report, if PROM enabled, whenever a trouble condition is sensed in zone 4. When the trouble condition has restored for 16 seconds, a restore message will be sent (if PROM enabled).

d) **Cancel Code**

If PROM enabled, the cancel code may be used for systems not utilizing opening/closing reports. The cancel code will be sent if a burglary alarm is turned off (cancelled) before the bell/siren times out. The cancel code does not apply for fire or panic reports, however.

2. **16 Second Secondary Communicator Delay**

An additional 16 second delay may be added to the communicator trigger to reduce the possibility of false alarms. This timing begins after any delay already provided by the Exterior Sounder/Primary Communicator Delay option (described above). The trigger delay option might be chosen, for example, on zones not utilizing the exterior sounder delay. In addition to zones 1-6, trigger delays are available for

both trouble and closing reports.

3. **Report to Secondary Phone Number Only**

The system allows for the various communicator reports to be divided between two central stations (or two receivers). This option is chosen in some situations, where, for example, all alarms may be routed to a primary alarm receiver while non-critical items, such as troubles or open and closing reports, might be routed to a secondary receiver.

4. **Miscellaneous Communicator Options**

a) **All Messages On One Call**

As shipped, the system is set up with a feature that gives alarm messages priority over trouble messages and other non-alarm messages, when sending in a format other than Ademco High Speed.

For example, if an alarm message for the primary receiver occurs while the communicator is reporting shunt conditions to the secondary receiver, the communicator will abort the shunt reports.

It will then call the primary receiver to report an alarm. After the alarm has been reported, the communicator will resume reporting the shunts.

Optionally, the system may be made to finish all messages to the active phone number before switching to the other phone number.

b) **Duress Message to Second Phone Number**

When PROM selected, this option routes duress messages to the secondary receiver.

c) **AC Fail/Test/Low Battery to Second Phone Number**

When PROM selected, this option routes AC Failure and Restore, Low Battery, and Test reports to the secondary receiver.

d) **Low Battery Report Format Select**

As shipped, when using Ademco High Speed Format, the system will report Low Battery messages as follows:

ACCT 5555 5555 8 Low Battery

A PROM option is available that enables battery failure reporting in a different manner (See Section on High Speed Format). This format also allows battery restore reports to be transmitted.

e) **Dual Report**

When PROM selected, this option causes <u>all</u> communicator messages to be sent to <u>both</u> a primary receiver and a secondary receiver.

f) **ALT by 2's** (Alternate by Pairs)

This option, when PROM selected, will cause the communicator to alternate between the primary receiver and the secondary receiver while it is attempting to get through. It will first make two attempts to the primary receiver, then two attempts to the secondary receiver, and so on until it either receives a kissoff signal from one receiver or exhausts the maximum number of attempts.

5. **Communicator Restore Report Enable**

If a zone is set up as a restore zone (see control option #14) and it is desired to communicate restore, the reporting can be PROM enabled for any such zone or zones.

6. **Communicator Channel Assignment**

On the system, each alarm zone, as well as the duress report, may be assigned a communicator channel. How the zones are assigned to channels affects the types of reports that will be sent. As an example, each zone could be given a different communicator code for unique zone reporting. Or the zones could be grouped by function with duress and silent panic zones as Channel (or Code) 1, the fire zone as Channel (or Code) 2, and the burglary zones as Channel (or Code) 3 (this would allow the system to be compatible with an existing central station alarm code scheme).

7. **Communicator Format**

Individually selectable for primary and secondary telephone numbers - Ademco Low Speed and/or Ademco High Speed, Sescoa, Radionics Superfast.

II. FUNCTIONAL DESCRIPTION

A. FUNCTIONAL DESCRIPTION, No. 4160-12 C-COM (See Diagram 4)

1. **Switches:**

FIRE TEST/RESET Switch: Rightward movement of this momentary action, center off switch shorts the fire loop to initiate an alarm. In addition, the charging current to the battery is interrupted while this switch is held, giving an indication of battery condition. The test is reported to the central station using the Test code. The fire test is reset by sliding the switch to the RESET position.

Leftward movement of this switch resets the fire circuit. In addition, the power to the smoke detectors is interrupted, resetting any detectors that were activated. Clearing of the fire alarm memory indication on the console and on the C-COM requires entry of the security code and OFF at a console or keypad.

In addition, the fire circuit may be bypassed by holding the switch to the left for 5 seconds. A fire trouble indication will be provided when the fire circuit is bypassed.

2. **LED Indicators:**

ZONE LEDS FOR ZONES 1, 2, 3, 4, 6 (RED): These LEDs indicate the status of their respective zones:

ON STEADY - Existing Zone Fault
SLOWLY FLASHING - Shunted
RAPIDLY FLASHING - Memory of Alarm

ZONE 4 TROUBLE LED (RED): This LED indicates the trouble status of zone 4 whether it is operating as a supervised fire zone or as a day trouble burglary zone:

ON STEADY - Existing Trouble
RAPIDLY FLASHING - Memory of Trouble

POWER LED (GREEN): This LED indicates the presence of AC power to operate the system. This LED will turn off immediately when AC power is lost.

B. **FUNCTIONAL DESCRIPTION, No. 4165 SIREN-DRIVER (See Diagram 5)**

Controls:

PITCH ADJUSTMENT: The small blue potentiometer permits the adjustment of the pitch of sound produced by the siren driver. Clockwise adjustment (as viewed from the right side of the cabinet) increases the pitch and counterclockwise adjustment descreases the pitch.

C. **FUNCTIONAL DESCRIPTION, No. 5321 SECURITY CONSOLE (See Diagram 6)**

1. **Keypad, LEDs and Message Displays:**

NOTE: The interval between consecutive key depressions must **not** be greater than 2 seconds for acceptance of the entry.

Keys 0-9: These are used to enter the security code and the duress digit.

OFF Key and LED (Green): When depressed subsequent to entry of the security code, silences alarms, memory and trouble audibles and disarms the system. The OFF LED is lit when the system's burglary protection is turned off.

AWAY Key and LED (Red): When depressed subsequent to entry of the security code, arms the entire burglary system if there are no faulted zones. The AWAY LED is lit when the system is armed in this mode.

STAY Key and LED (Red): When depressed subsequent to entry of the security code, arms all of the burglary zones except Zone 3 (Interior Protection) if there are no faulted zones (other than Zone 3). The STAY LED is lit when the system is armed in this mode.

POWER LED (Green): This LED indicates the presence of AC power to operate the system. This LED will turn off immediately when AC power is lost.

BYPASS KEY and LED (Yellow): When depressed subsequent to entry of the security code and followed by one or more zone number(s) (1 to 6) while in the disarmed state, will individually shunt the zone(s) designated [assuming that the programming of the system permits the shunting of the particular zone(s)].

When depressed subsequent to entry of the security code and either the AWAY or STAY keys, the burglary system will arm with any faulted zones shunted [assuming that the programming of the system permits the forced automatic shunting of the particular zone(s)].

The BYPASS LED is lit when one or more zones is shunted either by force arming or by individual shunt selection. All shunts are automatically removed when the system is turned off.

INSTANT Key and LED (Yellow): When depressed subsequent to entry of the security code and either the AWAY or STAY keys, the burglary system will arm with the entry delay disabled on any zones designated as entry/exit zones, making them instant alarm zones for subsequent entry. The INSTANT LED is lit when the system is in this mode. The entry delay for these zones is restored subsequent to the system being turned off.

CODE Key and LED (Yellow): When depressed subsequent to entry of the security code, will permit the entry of a secondary user changeable 4 digit security code. The code permits the performance of all of the functions permitted by the PROM programmed master code except change of itself to a new code. In addition, the secondary code is blocked from performance of any of its functions when the system is armed with the master code, as an added security feature. Repeating digits are permitted in code entries and if the secondary code entered happens to be the same code as the master code except for the secondary code last digit matching the duress digit, the duress silent panic capability will be suppressed until the secondary code is changed, so as to avoid needless false alarms being reported to the central alarm monitoring service. The CODE LED is lit whenever a secondary code is in effect.

CHIME Key and LED (Yellow): When depressed subsequent to entry of the security code during the disarmed state, will enable a mode in which any fault in Zones 1 or 2 will cause a brief loud tone to be heard at each security console and remote keypad. The mode can be disabled by subsequent reentry of the code and redepression of the CHIME key. The CHIME LED is lit whenever the CHIME mode is in effect. The CHIME mode is never in effect during the armed state.

READY Key and LED (Green): When depressed at any time, permits the Zone Identification Display to identify any presently faulted zones. Subsequent entry of the security code followed by depression of the OFF Key turns off the zone display. The READY LED is

lit whenever all zones are intact (ready for arming) during the disarmed state. It is off at other times.

ENTER Key: When depressed subsequent to security code and function or mode entry, eliminates the 2 second keying delay that exists prior to acting on the function or mode request (use of this key is optional).

FIRE and FIRE Keys and LED (Red): Simultaneous depression of both keys causes manual activation of the fire alarm (if fire is programmed for Zone 4). The FIRE LED is lit when a fire alarm has been caused by this means or by a short in the fire zone and remains as a memory of alarm after timeout.

POLICE and POLICE Keys and LED (Red): Simultaneous depression of both keys causes manual activation of a Zone 5 alarm (audible or silent as a function of zone programming). The POLICE LED is lit when a Zone 5 Police alarm has been caused by this means or by a fault in Zone 5 AND Zone 5 has been programmed with the console display enabled. It remains lit as a memory of alarm after timeout.

EMERG and EMERG Keys and LED (Red): Simultaneous depression of both keys causes manual activation of a Zone 6 audible alarm (if Zone 6 was programmed as a 24 hour alarm zone). The EMERG LED is lit when a Zone 6 Emergency Alarm has been caused by this means or by a fault in Zone 6 AND Zone 6 has been programmed for 24 hour emergency alarms. It remains lit as a memory of alarm after timeout.

AUX and AUX Keys and LED (Red): Not Used - Future Application.

ZONE IDENTIFICATION DISPLAY (Red): This one digit display provides the zone identification for each zone programmed as a burglary zone during the disarmed and armed states, for both current faults as well as for memory of alarm.

BURGLRY Message Display (Red): This message is displayed subsequent to intrusion in one of the burglary zones when the system is armed and remains, along with the Zone I.D. Display, as a memory of alarm after the alarm condition is removed.

CHECK Message Display (Red): This message is displayed subsequent to a trouble condition being detected in Zone 4, when this zone is programmed as either a fire zone or a day trouble burglary zone, and remains as a memory of the trouble after the trouble condition is removed.

PHONE Message Display (Red): This message lights steadily while any phone transmission (except a silent alarm where the system is programmed for console inhibit) of an alarm, trouble, open/close, cancel, or restore is in process. When the central alarm monitoring service receiver acknowledges the transmission with a kiss off, the message will flash for 30 seconds.

2. **Audible Signals**

Fire Alarm: Interrupted, rapidly alternating two-tone sound accompanied by lighting of FIRE LED.

Burglary/Audible Police/Emergency Alarm:

Either continuous rapidly alternating two-tone sound or continuous slowly alternating two-tone sound (dependent upon system programming) accompanied by lighting of BURGLRY message, POLICE LED, or EMERGENCY LED.

System Turned OFF or Failure to Arm: Single brief tone
System Armed AWAY: Two brief tones
System Armed STAY: Three brief tones
Trouble: Rapidly pulsing tones for a Zone 4 trouble or for a loss of AC power beyond the programmed time period.
Entry Warning: Slowly pulsing tones activated during the entry delay period.
Chime Annunciation: Single tone each time Zone 1 or 2 is faulted when in this mode.
Memory of Alarm: Rapidly pulsing tones activated during the entry delay period subsequent to an alarm or after disarming subsequent to an alarm.
Key Depression Feedback: Brief buzz tone for each key not in the dual key panic section of the keypad.

D. **FUNCTIONAL DESCRIPTION, NO. 5314 REMOTE KEYPAD (See Diagram 7)**

1. **Keypad and LEDs:**

Keys 0-9: These are used to enter the security code and the duress digit.

OFF Key: When depressed subsequent to entry of the security code, silences alarms, memory, and trouble audibles and disarms the system.

AWAY Key and LED (Red): When depressed subsequent to entry of the security code, arms the entire burglary system if there are no faulted zones. The AWAY LED is lit when the system is armed in this mode.

STAY Key and LED (Red): When depressed subsequent to entry of the security code, arms all of the burglary zones except for Zone 3 (Interior Protection) if there are no faulted zones (other than Zone 3). The STAY LED is lit when the system is armed in this mode.

CHK.BYP LED (Yellow): This LED lights steadily if a zone has been shunted by either force arming or individual zone shunting. It flashes if a trouble condition in Zone 4 has been detected. The trouble indication overrides the shunt indication if both

are present simultaneously.

BYPASS Key: When depressed subsequent to entry of the security code and followed by one or more zone number(s) (1 to 6) while in the disarmed state, will individually shunt the zone(s) designated [provided that the programming of the system permits the shunting of the particular zone(s)].

When depressed subsequent to entry of the security code and either the AWAY or STAY keys, the burglary system will arm with any faulted zones shunted [provided that the programming of the system permits the forced automatic shunting of the faulted zone(s)].

INSTANT Key: When depressed subsequent to entry of the security code and either the AWAY or STAY keys, the burglary system will arm with the entry delay disabled on any zones designated as entry/exit zones making them instant alarm zones for subsequent entry. The entry delay is restored subsequent to the system being turned off.

CODE Key: When depressed subsequent to entry of the security code, will permit the entry of a secondary user changeable 4 digit security code. The code permits the performance of all of the functions permitted by the PROM programmed master code except change of itself to a new code. In addition, the secondary code is blocked from performance of any of its functions when the system is armed with the master code, as an added security feature. Repeating digits are permitted in code entries and if the secondary code entered happens to be the same code as the master code except for the secondary code last digit matching the duress digit, the duress silent panic capability will be suppressed until the secondary code is changed so as to avoid needless false alarms being reported to the central alarm monitoring service.

CHIME Key: When depressed subsequent to entry of the security code during the disarmed state, will enable a mode where any fault in Zones 1 or 2 will cause a brief loud tone to be heard at each security console and remote keypad. The mode can be disabled by subsequent reentry of the code and depression of the OFF key.

READY LED (Green): This LED is lit whenever all zones are intact (ready for arming) during the disarmed state. It is off at other times.

ENTER Key: When depressed subsequent to security code and function or mode entry, eliminates the 2 second keying delay that exists prior to acting on the function or mode request (use of the key is optional).

2. **Audible Signals:**

System Turned OFF or Failure to Arm:	Single brief buzz
System Armed AWAY:	Two brief buzzes
System Armed STAY:	Three brief buzzes

Trouble: Rapidly pulsing buzz for a Zone 4 trouble or for a loss of AC power beyond the programmed time period.

Entry Warning: Slowly pulsing buzz activated during the entry delay period subsequent to an alarm or after disarming subsequent to an alarm.

Key Depression Feedback: Brief buzz for each key depressed.

E. **FUNCTIONAL DESCRIPTION, NO. 9787/9789 REMOTE KEY ARMING STATION (See Diagram 8)**

Arm/Disarm Keyswitch: Momentary clockwise turning of the key causes AWAY arming, disarming, trouble and memory of alarm audible clearing.

Holding the keyswitch in the clockwise turned position for a period of 5 seconds, when attempting to arm AWAY with a faulted zone, causes forced arming with automatic shunting of the faulted zones (if permitted by zone programming).

Red LED: When lit steady, this LED indicates that the burglary system is armed.

This LED flashes to provide a memory of alarm indication.

Green LED: When lit, this LED indicates that all zones are intact and ready for arming. This LED is only lit during the disarmed state.

III. COMMUNICATOR OPERATION

The communications capability of the system links it with a monitoring central station using the telephone switched network. When alarm, trouble, or status information is to be communicated, it is translated into a message appropriate to the format selected via the various PROM options described previously. The system then seizes the phone line.

A. Line Seizure

A Double Pole Double Throw relay disconnects all extension phones on this telephone line so that the communicator cannot be blocked by outgoing calls or by a phone left off hook. The system then executes a short 1.6 second hang-up, to insure a disconnect in case an outgoing call was being made, and attempts to establish a communication link. At this time the PHONE message on the console will light for alarms not inhibited for this action. If the system is unsuccessful in establishing the link, an anti-jam procedure is executed if the telco network used features "called party disconnect."

B. **Anti-Jam**

Many U.S. telephone networks will automatically disconnect the calling party if the called party hangs up for a period of time. The system automatically executes a 30 second anti-jam (hang up) **AFTER** the first call attempt and each successive call to prevent any incoming calls from blocking transmission.

NOTE: Only if PROM selected.

The communicator link is established in the following manner. The system checks for a dial tone.

C. **Dial Tone Detection**

In order to reduce response time, the system senses both local (PBX) and external (telco) dial tones. If a dial tone is detected, the system dials using the PROM selected Touchtone or rotary dial format. If a dial tone is not detected within a PROM programmed waiting period, the system will dial anyway, as it assumes that a good connection has been made and that the dial tone is not clear.

The PROM selectable waiting periods are:

- 5 seconds - for quick disconnect Telco or PABX systems
- 11 seconds - for normal telco systems
- 30 seconds - for slow response telco systems

The system dials up to two separate 16 digit telephone numbers. It may be programmed to do this in a number of ways.

D. **PROM Calling Options**

- **Alternate by Pairs** - Call the second number upon failing to receive Kissoff after two attempts to the primary number, then alternate every two calls between the primary and second number until Kissoff is received from one or until the maximum number of attempts is reached.

- **Dual Report** - Always call the second number even after Kissoff from or having reached the maximum number of attempts to the first number.

- **Second Number Only** - Having selected alarm code/channels report only to the second number (e.g. open/close reports)

Successful connections are verified when the system receives an acknowledgment tone from the central station receiver. If this tone is not received within a defined period, the system will disconnect from the line and wait 30 seconds before trying again. The calling procedure will be repeated in varying combinations, as programmed, until a successful link is established or until the maximum number of attempts is reached.

E. **Acknowledge Wait PROM Options**

- 30 seconds - standard
- 60 seconds - slow response central station systems

Message transmission will begin when the acknowledgment is received. The system will transmit in the Ademco LOW or HIGH SPEED formats depending upon which acknowledgment tone has been received from the central station. The latter is not true for SESCOA or Radionics Superfast formats which are specifically programmed for proper response to their acknowledge and acknowledge-hold receiver signals.

F. **Transmission Format PROM Options**

- Ademco High Speed Only
- Ademco High or Low Speed (depends on C.S. receiver tone received)
- SESCOA
- Radionics "Superfast"

NOTE: Extended reporting from each of the above formats is separately PROM selectable.

To ensure proper transmission, each message is sent up to four times. As soon as the central station receiver verifies the message, it sends a "Kissoff" tone to the system. This causes the PHONE display on the console to flash for 30 seconds.

G. **Message Verification PROM Options**

- Two successive identical messages - Ademco No. 673 and 685 receivers as well as Adcor, Franklin, Radionics, SESCOA, Silent Knight, and Vertex receivers.

- Single message transmission with check sum verification - Ademco No. 685 (in High Speed Format only) and Radionics

If the system does not receive the "Kissoff" tone, it will disconnect and dial again. It will make as many attempts to obtain kissoff via the primary and secondary phone numbers as is PROM programmed.

H. **Ademco Low Speed Reporting Format**

This message consists of the last 3 digits of the subscriber identification number and a single digit alarm code PROM assigned to that alarm/trouble/status report.

If more than one alarm is triggered, the alarms will report in priority order (i.e. low alarm code first) unless the subsequent alarms trigger while one or more alarm messages have already commenced transmission. Each message must receive "kissoff" before the next is sent.

Example: If codes 3 and 6 of Subscriber 1890 are to be reported, the system will respond as follows:

890 3
890 3*
"Kissoff"
890 6
890 6*
Final "kissoff" (system hang-up)

*Assumes, in this example, that two identical messages verification is used.

NOTE: Only the last 3 digits of the subscriber identification number will be sent in this case. The full 4 digits will be used in conjunction with the HIGH SPEED FORMAT described later.

Expanded Reporting Optional Capabilities

- **Alarm/Trouble Reporting by Zone**

Each zone within the C-COM can be assigned its own alarm code or multiple zones can be grouped on a common code, installer choice. However, other types of reports can be uniquely identified by using extended reporting. Extended reporting operates as follows for each of the below cited examples:

Alarm Restoral

Message Sent = 89Ø R_1
$R_1R_1R_1$ Z

Where: R_1 = numeric alarm restoral code selected

Z = Zone number

890 = Sample Subscriber Account Number

Trouble Transmission

Message Sent = 89Ø T
TTT Z

Where: T = numeric trouble code selected

Z = zone number

Trouble Restoral

Message Sent = 89Ø R_2
$R_2R_2R_2$ Z

Where: R_2 = numeric trouble restoral code selected

Z = number of zone restored

Shunt Report

Message Sent = 89Ø S
SSS Z

Where: S = numeric shunt code selected
Z = number of zone shunted

Shunt Restoral

Message Sent = 89Ø R_3
$R_3R_3R_3$ Z

Where: R_3 = numeric shunt restoral code selected

Z = number of zone for which shunt was removed.

User Identification at Open/Close

Message Sent = 89Ø C
CCC U

Where: C = numeric closing code selected
U = User ID number, 1 or 2.

NOTE: Similar for Opening except that Closing Code is replaced by the Opening Code.

Low Battery Restoral

Message Sent = 89Ø B
BBB R_4

Where: B = low battery report code selected
R_4 = low battery restoral code selected

Loss of AC Restoral

Message Sent = 89Ø A
AAA R_5

Where: A = AC loss report code selected
R_5 = AC restoral code selected

I. ADEMCO HIGH SPEED REPORTING FORMAT

Receipt by the system of a high speed acknowledgment tone from a No. 685-2 Line Card in a No. 685 Digital Alarm Receiver will result in HIGH SPEED FORMAT transmissions, each containing 13 digits as follows: 4 digit subscriber identification number, 8 digits defining the status of each of the alarm reporting channels, and 1 digit defining the status of the ninth auxiliary channel.

NOTE: If the system is programmed for Ademco format (that is, neither the SESCOA nor the Radionics system programming option described under PROGRAMMING OPTIONS has been selected), it will automatically respond at HIGH SPEED to a high speed acknowledgment tone and at LOW SPEED to a low speed (or standard) acknowledgment tone. No special re-programming of the PROM chip is required for HIGH SPEED. Only the last 3 digits of the 4 digit subscriber identification code will be sent at LOW SPEED; therefore, to ensure the same identification at HIGH SPEED as at LOW SPEED, program the first digit as a "0".

As the number of subscribers calling into the central monitoring station increases beyond 1000 (subscriber identification number 999), the No. 685-2 Line Cards can easily be modified to send only the high speed acknowledgment tone. Subsequently connected systems may then be programmed with subscriber numbers 1000 through 9999.

For the six alarm reporting channels (digits 5 through 10), the channel status codes are as follows:

Code	Meaning
1	NEW ALARM OR CONDITION (previously unreported)
3	NEW RESTORE (previously unreported)
5	NORMAL (no event since previously reported RESTORE)
6	PREVIOUSLY REPORTED ALARM (OR CONDITION) STILL IN EFFECT

For the ninth channel (digit 13), the following channel status codes are used:

2	OPENING REPORT in the previous 8 channels
3	SHUNT REPORT in the previous 8 channels
4	CLOSING REPORT in the previous 8 channels
5	TROUBLE REPORT in the previous 8 channels
6	SYSTEM TROUBLE REPORTS in the previous 8 channels
7	NORMAL - alarms are reported in previous 8 channels
8	NEW LOW BATTERY (will not re-report on subsequent calls and will not send restore) - old high speed format method for reporting system low battery - alarms are reported in the previous 8 channels
9	TEST REPORT - alarms are reported in the previous 8 channels

NOTE: Only NEW events: ALARM (or OPENING), or RESTORE (or CLOSING) on any channel or TROUBLE or 24 hour zone SHUNTS or TEST will trigger transmission, at which time all 9 channels will report.

Examples (HIGH SPEED format):

1. At subscriber #2890, channels 1 through 6 (7 and 8 are not used in this system) are normal and a low battery (channel 9) initiates a call. The following message will be sent:

	Subscriber Identification	Channel Number 1 2 3 4 5 6 7 8 9
Message:	2 8 9 0	5 5 5 5 5 5 5 5 8
	Channel 9:	NEW LOW BATTERY

2. At subscriber #5890, channels 2 and 5 go into alarm (and initiate a call) and channel 6, which has previously reported an alarm is still triggered.

	Subscriber Identification	Channel Number 1 2 3 4 5 6 7 8 9
Message:	5 8 9 0	5 1 5 5 1 6 5 5 7
	Channel 2:	NEW ALARM
	Channel 5:	NEW ALARM
	Channel 6:	PREVIOUSLY REPORTED ALARM (still in effect)

3. Still at subscriber #5890, following the events of example 2 above, channel 2 restores (initiating the call) and channels 5 and 6 remain in alarm:

	Subscriber Identification	Channel Number 1 2 3 4 5 6 7 8 9
Message:	5 8 9 0	5 3 5 5 6 6 5 5 7
	Channel 2:	NEW RESTORE
	Channels 5,6:	PREVIOUSLY REPORTED ALARMS (still in effect)

4. Subscriber #0135 sends an opening:

	Subscriber Identification	Channel Number 1 2 3 4 5 6 7 8 9
Message:	0 1 3 5	1 2 2 2 2 2 2 2 2
	Channel 1:	USER ID - User #1 opened
	Channels 2-9:	OPENING REPORT TRANSMITTED

5. After transmission of Example 4, subscriber #0135 sends a closing:

	Subscriber Identification	Channel Number 1 2 3 4 5 6 7 8 9
Message:	0 1 3 5	1 4 4 4 4 4 4 4 4
	Channel 1:	USER ID - User #1 closed
	Channels 2-9:	CLOSING REPORT TRANSMITTED

6. Subscriber #0135, User #1 force arms the system, causing faulted zone 2 to be shunted (for the sake of this example, Zone 2 = Channel 2, not a requisite).

	Subscriber Identification	Channel Number 1 2 3 4 5 6 7 8 9	
Message:	0 1 3 5	1 4 4 4 4 4 4 4 4	(Closing Report)
	0 1 3 5	5 1 5 5 5 5 5 5 3	(Shunt Report)

NOTE: Shunt reports always accompany closing reports when burglary zones are shunted. If individual zone shunting had been performed prior to arming, the shunt reports would be sent later when the system was armed and the closing report sent. If a 24 hour zone (e.g. fire, panic) were to be individually shunted (if permitted by installer PROM option), the shunt report depicted below would be transmitted immediately. The example below shows a shunt report for Zone 5.

	Subscriber Identification	Channel Number 1 2 3 4 5 6 7 8 9
Message:	0 1 3 5	5 5 5 5 1 5 5 5 3

Shunt restorals are **not** transmitted for burglary zones as these zones are known to have been restored when the system is disarmed and the opening report is transmitted. Shunt restorals are transmitted for 24 hour zones, however, when the restoral takes place.

5 8 9 0 5 3 5 5 5 5 5 3

7. If a trouble condition occurs in Zone 4 for subscriber #5890, a trouble report is transmitted.

	Subscriber Identification	Channel Number 1 2 3 4 5 6 7 8 9
Message:	5 8 9 0	5 5 5 1 5 5 5 5 5

Trouble restoral is transmitted as soon as it occurs.

5 8 9 0 5 5 5 3 5 5 5 5 5

NOTE: For trouble and shunt reports, the communicator channels correspond directly to the zones of the system, regardless of the zone-to-channel mapping chosen. For example, Zone 4 trouble will always be reported in the Channel 4 position of a trouble report.

8. If a system trouble condition occurs, a separate trouble message format exists.

	Subscriber Identification	Channel Number 1 2 3 4 5 6 7 8 9
For Loss of AC Reporting (Channel 1 is used)		
Message:	0 1 3 5	1 5 5 5 5 5 5 5 6
For AC Restoral		
Message:	0 1 3 5	3 5 5 5 5 5 5 5 6

If the "Low Battery Report in New Format" option has been selected, the battery condition will be reported as follows:

For Low Battery Reporting (Channel 2 is used)		
Message:	0 1 3 5	5 1 5 5 5 5 5 5 6
For Low Battery Restoral		
Message:	0 1 3 5	5 3 5 5 5 5 5 5 6

J. SESCOA/RADIONICS REPORTING FORMATS

The message structure used for these formats is similar to that used for the Ademco Low Speed format. However, the full hexadecimal code set (0-9, B-F) can be used. It should be noted that the hexadecimal code set can be used for the Ademco Low Speed format but only on receivers capable of decoding, displaying and printing the message data (the No. 660/673 Receivers can only accommodate the code set of 1-9).

IV. INSTALLER PROM PROGRAMMING

The system employs two PROM integrated circuits for selection of system options, one primarily for control characteristics and one totally for communicator characteristics. These PROMs are ordered separately, Ademco No. 691 if blank and will be programmed by the installer or No. 691P if the programming is done by Ademco to customer order. In either case the following feature charts need to be completed as a record of the system configuration.

CUSTOMER NAME_____ CUST. NO._____
CUSTOMER ADDRESS_____
_____
_____

NOTE: Program the numbers that you write into the boxes except for double boxes where you program the number preprinted in a box next to the box you check.

A. **Control PROM**

PROM Data Group 1

To program, set Phone No. Selector Switch to "Secondary" and Rotary Switch to Position 2 (Main Phone No.) on No. 690 PROM Programmer.

1. **Entry Delay** (Select 0-->9) ☐ X 15 secs = ____
2. **Exit Delay** (Select 0-->9) ☐ X 15 secs = ____
3. **Exterior Alarm Sounder/ Primary Communicator Delay** (Select 0-->9) ☐ X 15 secs = ____
4. **Alarm Sounder Timeout** (Select 0-->9) ☐ X 4 mins = ____
5. **AC Power Fail Reaction Delay** (Select 0-->9) ☐ X 4 mins = ____
6. **Select Zones with Entry/Exit Delay:** Check One — **Number of Box Checked**

   Zn 1 = 1☐ Zn 2 = 2☐ Zns 1, 2 = 3☐ Zn 3 = 4☐

   Zns 1, 3 = 5☐ Zns 2, 3 = 6☐ Zns 1, 2, 3 = 7☐ None = 0☐ ☐
7. **Select Fast Response (15 msec) Zones:** Check One

   Zn 2 = 1☐ Zn 3 = 2☐ Zns 2, 3 = 3☐ Zn 4 = 4☐

   Zns 2, 4 = 5☐ Zns 3, 4 = 6☐ Zns 2, 3, 4 = 7☐ None = 0☐ ☐
8. **Zone 4 Type Selection:** Check One

   Night Burglary = 0☐ Fire = 1☐ Day/Night Burglary = 2☐ ☐
9. **Zones 5 and 6 Type Selection:** Check One

   Zn 5 = Silent Panic (Console Display On), Zn 6 = Burglary: 0☐

   Zn 5 = Silent Panic (Console Display Off), Zn 6 = Burglary: 4☐

   Zn 5 = Silent Panic (Console Display On), Zn 6 = Audible Panic: 2☐

   Zn 5 = Silent Panic (Console Display Off), Zn 6 = Audible Panic: 6☐

Zn 5 = Audible Panic, Zn 6 = Burglary: [1][ ]

Zn 5 = Audible Panic, Zn 6 = Audible Panic: [3][ ] [ ]

10. **Alarm Sounder Options:** Check <u>One</u>

There are two burglary siren output formats from which to select if the optional No. 4165 Siren Driver is to be used. Output #1 is a slowly alternating HI/LO sound that is similar to the sound produced by emergency vehicles in some locales. Output #2 is a rapidly alternating HI/LO sound that is more like an electronic bell sound.

The confirmation of arming "ding" is a brief 1/2 second pulse of the exterior alarm sounder to advise the subscriber that the system has set up successfully after they are outside the premises. Primarily for commercial usage, this "Ding" is produced after kissoff (by the central station receiver) if "closing" reporting is programmed or after the exit delay has ended if "closing" reporting is not selected.

The separate A and B designations relate to the selection of the signal polarity of the output on TB1-1. This output presents the system's "arming status" to external controlled devices (e.g. motion detectors, contact identification annunciator). "A" selection yields a 0 Volt output for "Disarmed", a Voltage output for "Armed". "B" selection yields a Voltage output for "Disarmed", 0 Volt output for "Armed."

	A	B
Burglary Siren Output #1 (Slow Alt. HI/LO), <u>No</u> Confirmation of Arming "Ding":	[0][ ]	[4][ ]
Burglary Siren Output #2 (Rapid Alt. HI/LO), <u>No</u> Confirmation of Arming "Ding":	[1][ ]	[5][ ]
Burglary Siren Output #1, Confirmation of Arming "Ding":	[2][ ]	[6][ ]
Burglary Siren Output #2, Confirmation of Arming "Ding":	[3][ ]	[7][ ] [ ]

11. **Duress Digit** (Select 0-->9): [ ]

12. **Not Used**

<u>PROM Data Group 2</u>

To program, set Phone No. Selector Switch to "Primary" and Rotary Switch to Position 2 (Main Phone No.) on No. 690 PROM Programmer.

1. **Communicator Alarm Code/Channel* Assigned to Zone 1:** [ ]
2. **Communicator Alarm Code/Channel* Assigned to Zone 2:** [ ]
3. **Communicator Alarm Code/Channel* Assigned to Zone 3:** [ ]
4. **Communicator Alarm Code/Channel* Assigned to Zone 4:** [ ]
5. **Communicator Alarm Code/Channel* Assigned to Zone 5:** [ ]

6. **Communicator Alarm Code/Channel* Assigned to Zone 6:** ☐

7. **Communicator Alarm Code/Channel* Assigned to Duress Alarm:** ☐

8-12. **Not Used.**

***NOTE:** Select 1-->8 for communicator reports duplicate assignments allowed. Select 0 if communicator report not desired for a zone.

PROM Data Group 3

To program, set Phone No. Selector Switch to "Primary" and Rotary Switch to Position 3 (Subs ID #) on No. 690 PROM Programmer.

Master Security Code (Select from 0--9 digit set, repeating digits permitted):

☐☐☐☐

The following capabilities are individually selected by zone, check as many as desired for each zone:

PROM Data Group 4

To program, set Rotary Switch to Position 6 ("Inverted") on No. 690 PROM Programmer and raise switches for checked boxes.

Communicator Report Selection:
(check as many as desired)

SWITCHES

1	2	3	4	5	6	7	8
OPEN ---- CLOSE	SHUNTED ZONES	ZONE 4 TROUBLE	AC FAIL ------ LO BATT	CANCEL CODE	NOT USED	NOT USED	NOT USED
					X	X	X

NOTES:
1. Shunted Burglary Zone Report is transmitted at Armed AWAY time. Shunted 24 Hour Zone Report is transmitted immediately.
2. Cancel Code is transmitted if a **burglary** alarm is turned off while the alarm sounder is sounding (not applicable to fire and panic alarms)

PROM Data Group 5

To program, set Rotary Switch to Position 7 ("16 Sec Delay") and raise switches for checked boxes.

Secondary 16 second Communicator Report Delay: (check reports for which desired)

SWITCHES

1	2	3	4	5	6	7	8
ZONE 1	ZONE 2	ZONE 3	ZONE 4	ZONE 5	ZONE 6	ZONE 4 TROUBLE	CLOSING REPORT

PROM Data Group 6

To program, set Rotary Switch to Position 8 ("Secondary # Only") and raise switches for checked boxes.

Communicator Report to Second Telephone Number ONLY: (Check reports for which desired)

SWITCHES

1	2	3	4	5	6	7	8
ZONE 1	ZONE 2	ZONE 3	ZONE 4	ZONE 5	ZONE 6	ZONE 4 TROUBLE	OPEN/CLOSE AND SHUNTS

PROM Data Group 7

To program, set Rotary Switch to Position 9 ("Open/Close") and raise switches for checked boxes.

Miscellaneous Communicator Reporting Selection: (Check as many as desired)

SWITCHES

1	2	3	4	5	6	7	8
ALL REPORTS ON ONE CALL	DURESS ALARM TO 2ND TELCO NO. ONLY	AC FAIL, LOW BATTERY, TEST REPORT TO 2ND TELCO NO. ONLY	LOW BATT REPORT IN NEW ADEMCO HI SPEED FORMAT	NOT USED	NOT USED	DUAL REPORT	ALTERNATE BY PAIRS DIALING
				X	X		

PROM Data Group 8

To program, set Rotary switch to Position 10 ("Restore") and raise switches for checked boxes.

Central Station Restore Reports: (check as many as desired)

1	2	3	4	5	6	7	8
ZONE 1	ZONE 2	ZONE 3	ZONE 4	ZONE 5	ZONE 6	ZONE 4 TROUBLE	NOT USED
							X

NOTE: **This selection is only relevant if Local Restore for Multiple Alarm Sounding has been selected (see PROM Data Group 11)**

PROM Data Group 9

To program, set Rotary Switch to Position 11 ("Not Used") and raise switches for checked boxes.

Permit Forced Arming Shunt

SWITCHES

1	2	3	4	5	6	7	8
ZONE 1	ZONE 2	ZONE 3	ZONE 4	ZONE 5	ZONE 6	NOT USED	NOT USED
						X	X

PROM Data Group 10

To program, set Rotary Switch to Position 12 ("Not Used") and raise switches for checked boxes.

Permit Individual Keypad Shunt

SWITCHES

1	2	3	4	5	6	7	8
ZONE 1	ZONE 2	ZONE 3	ZONE 4	ZONE 5	ZONE 6	NOT USED	NOT USED
						X	X

PROM Data Group 11

To program, set Rotary Switch to Position 13 ("Not Used") and raise switches for checked boxes.

Local Restore for Sounding of Multiple Alarms in an Armed Period

SWITCHES

1	2	3	4	5	6	7	8
ZONE 1	ZONE 2	ZONE 3	ZONE 4	ZONE 5	ZONE 6	NOT USED	NOT USED
						X	X

PROM Data Group 12

To program, set Rotary Switch to Position 14 ("Not Used") and raise switches for checked boxes.

Delay Exterior Alarm Sounding and Central Station Reporting for Period Defined Previously

SWITCHES

1	2	3	4	5	6	7	8
ZONE 1	ZONE 2	ZONE 3	ZONE 4 (ONLY IF BURG ZONE)	NOT USED	ZONE 6 (ONLY IF BURG ZONE)	NOT USED	NOT USED
				X		X	X

B. **Communication PROM**

PROM Data Group 1

To program, set Phone No. Selector Switch to "Primary" and Rotary Switch to Position 1 (Access #) on No. 690 PROM Programmer

Primary PABX Access Number* (Select from 0-->9, Up to 4 digits): ☐☐☐☐ (ex: 9)

PROM Data Group 2

To program, set Phone No. Selector Switch to "Secondary" and Rotary Switch to Position 1 (Access #) on No. 690 PROM Programmer.

Secondary PABX Access Number* (Select from 0-->9, Up to 4 digits): ☐☐☐☐

PROM Data Group 3

To program, set Phone No. Selector Switch to "Primary" and Rotary Switch to Position 2 (Main Phone No.) on No. 690 PROM Programmer.

Primary Telco Number* (Select from 0-->9, Up to 12 digits):

☐☐☐☐☐☐☐☐☐☐☐☐

[ex: Out of Area Access digit (1), Area Code, Exchange, Line Number]

PROM Data Group 4

To program, set Phone No. Selector Switch to "Secondary" and Rotary Switch to Position 2 (Main Phone No.) on No. 690 PROM Programmer.

Secondary Telco Number* (Select from 0-->9, up to 12 digits):

☐☐☐☐☐☐☐☐☐☐☐☐

***NOTE:** Trailing blanks are permissible for entries less than the maximum number of digits but leading or intermediate blanks are **NOT** allowed.

PROM Data Group 5

To program, set Phone No. Selector Switch to "Primary" and Rotary Switch to Position 3 (Subs ID#) on No. 690 PROM Programmer.

Primary Subscriber ID** (Select from 0-->9): ☐☐☐☐

PROM Data Group 6

To program, set Phone No. Selector Switch to "Secondary" and Rotary Switch to Position 3 (Subs ID#) on No. 690 Programmer.

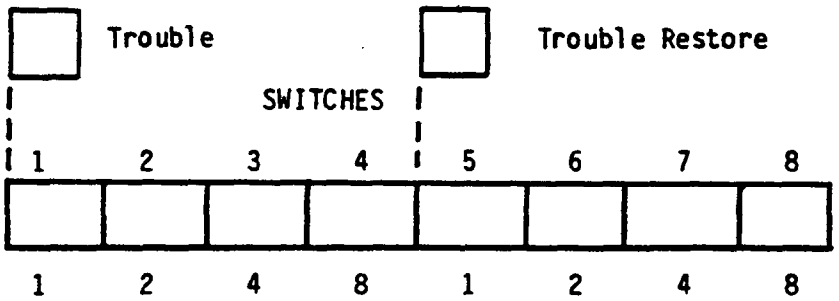
Secondary Subscriber ID** (Select from 0-->9): ☐☐☐☐

****NOTE:** All 4 digits must be filled in. The leading digit is **not** transmitted for Ademco Low Speed, SESCOA, and Radionics. Only the last 3 digits are transmitted.

PROM Data Group 7

To program, set Rotary Switch to Position 4 ("Not Used") and raise switches for checked boxes representing bits set within the hexadecimal code.

Ademco Low Speed/SESCOA/Radionics Reporting Codes for Trouble and Trouble Restore (Select from 0-->9, B-->F)

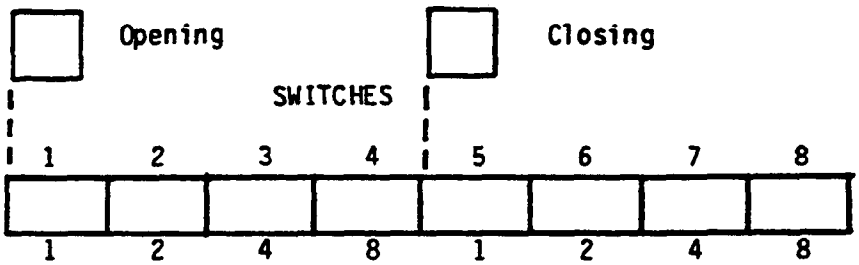


(ex: 7 = 1 + 2 + 4, B = 1 + 2 + 8, C = 4 + 8, D = 1 + 4 + 8)

PROM Data Group 8

To program, set Rotary Switch to Position 5 ("Sys Options") and raise switches for checked boxes representing bits set within the hexadecimal code.

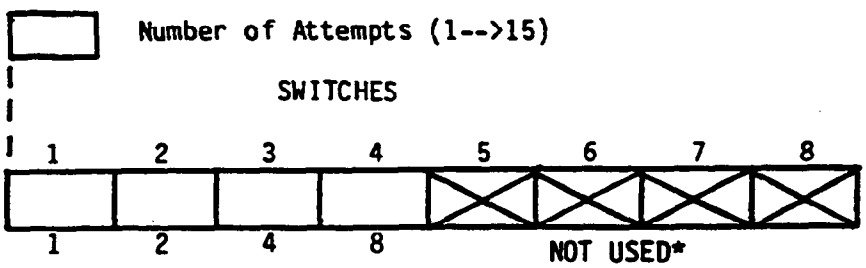
Ademco Low Speed/SESCOA/Radionics Reporting Codes for Opening and Closing (Select from 0-->9, B-->F)



PROM Data Group 9

To program, set Rotary Switch to Position 6 ("Inverted") and raise switches for checked boxes representing bits set within the hexadecimal code.

Maximum Number of Attempts to Dial (Select from 1-->15, defaults to 8 if not programmed)



***NOTE:** Switches 5-8 must be in down position.

PROM Data Group 10

To program, set Rotary Switch to Position 7 ("16 sec Delay") and set switches for checked boxes as indicated.

Acknowledge Characteristics and Reporting Formats for Communication to PRIMARY Telco Number (check as desired):

SWITCHES

	1	2	3	4	5	6	7	8
	ACK WAIT	FORMAT SELECTION I	DATA FREQUENCY, FOR LOW SPEED ONLY	DIGIT TIME	FORMAT SELECTION II		CHECK-SUM VERIFICATION ONLY FOR NO. 685 RCVR USERS	LOW SPEED FORMAT SELECTION
BIT SET (RAISE SWITCH)	EXTENDED 60 SECS.	ADEMCO HIGH SPEED TRANSMISSION	ADEMCO	SESCOA	ADEMCO SESCOA	ADEMCO	SINGLE MESSAGE W/CHECK-SUM VERIFICATION	EXTENDED DATA REPORTING
BIT NOT SET (SWITCH DOWN)	STANDARD 30 SECS.	HIGH OR LOW SPEED TRANSMISSION	SESCOA RADIONICS	ADEMCO, RADIONICS SUPERFAST	RADIONICS SUPERFAST	RADIONICS SUPERFAST SESCOA	STANDARD 2 MESSAGE VERIFICATION	STANDARD

PROM Data Group 11

To program, set Rotary Switch to Position 8 ("Secondary # Only") and set switches for checked boxes as indicated.

Acknowledge Characteristics and Reporting Formats for Communication to SECONDARY Telco Number (check as desired):

SWITCHES

	1	2	3	4	5	6	7	8
	ACK WAIT	FORMAT SELECTION I	DATA FREQUENCY, FOR LOW SPEED ONLY	DIGIT TIME	FORMAT SELECTION II		CHECK-SUM VERIFICATION ONLY FOR NO. 685 RCVR USERS	LOW SPEED FORMAT SELECTION
BIT SET (RAISE SWITCH)	EXTENDED 60 SECS.	ADEMCO HIGH SPEED TRANSMISSION	ADEMCO	SESCOA	ADEMCO SESCOA	ADEMCO	SINGLE MESSAGE W/CHECK-SUM VERIFICATION	EXTENDED DATA REPORTING
BIT NOT SET (SWITCH DOWN)	STANDARD 30 SECS.	HIGH OR LOW SPEED TRANSMISSION	SESCOA RADIONICS	ADEMCO, RADIONICS SUPERFAST	RADIONICS SUPERFAST	RADIONICS SUPERFAST SESCOA	STANDARD 2 MESSAGE VERIFICATION	STANDARD

PROM Data Group 12

To program, set Rotary Switch to Position 9 ("Open/Close") and set switches for checked boxes as indicated.

Dialing and Reporting Characteristics Selection (Check as desired):

SWITCHES

	1 2 3 NOT USED	4 30 SECOND ANTI-JAM*	5 DIAL PULSE RATIO	6 TYPE OF DIALING	7 EXTENDED DIAL TONE WAIT	8 NOT USED
BIT SET (RAISE SWITCH)		YES	FOREIGN (67/33)	TOUCH TONE	30 SECS.	
BIT NOT SET (SWITCH DOWN)	✓ ✓ ✓					✓
		NO	U.S./CANADA (60/40)	PULSE DIAL	USE SW.8 SETTING IN GROUP 13	

*Should be enabled on all telco networks which have called party disconnect (hanging up the phone for a period of time will cause disconnect of an incoming call)

PROM Data Group 13

To program, set Rotary Switch to Position 10 ("Restore") and set switches for checked boxes as indicated.

Dialing and Reporting Characteristics Selection (Check as desired):

SWITCHES

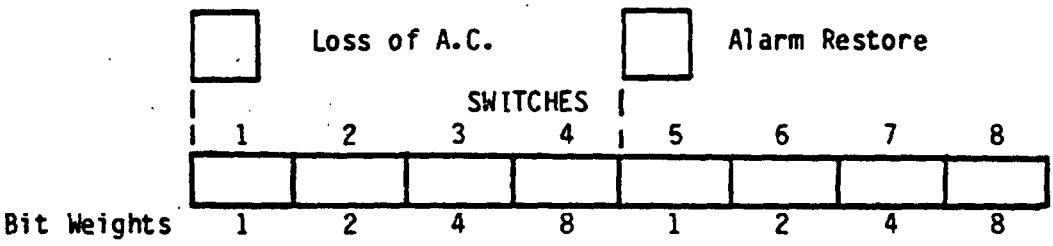
	1 DATA TONE FREQUENCY	2 INTERDIGIT TIME	3 2ND SUB-SCRIBER I.D. TO 2ND TELCO NO.	4 UNLIMITED ATTEMPTS TO REACH C.S.	5 6 7 NOT USED	8 NORMAL DIAL TONE WAITS*
BIT SET (RAISE SWITCH)	1890Hz FOREIGN	OTHER (840 MSEC)	YES	YES		5 SECS. (PABX)
BIT NOT SET (SWITCH DOWN)					✓ ✓ ✓	
	1900Hz U.S. (STANDARD)	U.S. (640 MSEC)	NO	NO, USE NUMBER SET PREVIOUSLY		11 SECS. (TELCO)

*Only effective if Switch 7 in PROM Data Group 12 was down when that Data Group was programmed.

PROM Data Group 14

To program, set Rotary Switch to Position 11 ("Not Used") and raise switches for checked boxes representing bits set within the hexadecimal code.

Ademco Low Speed/SESCOA/Radionics Reporting Codes for Loss of A.C. and Alarm Restore* (Select from 0-->9, B-->F)



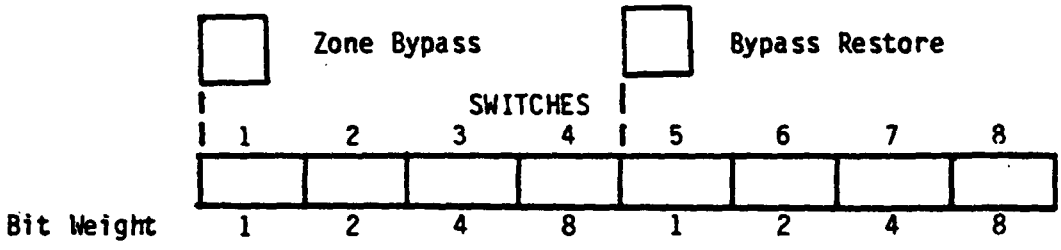
*NOTE: An entry is mandatory for these two codes (e.g. 9) in the indicated formats, even if there is no interest in receiving these reports.

CAUTION: Position 12 ("Not Used") on the Rotary Switch is **NOT TO BE USED** in programming the communication PROM.

PROM Data Group 15

To program, set Rotary Switch to Position 13 ("Not Used") and raise switches for checked boxes representing bits set within the hexadecimal code.

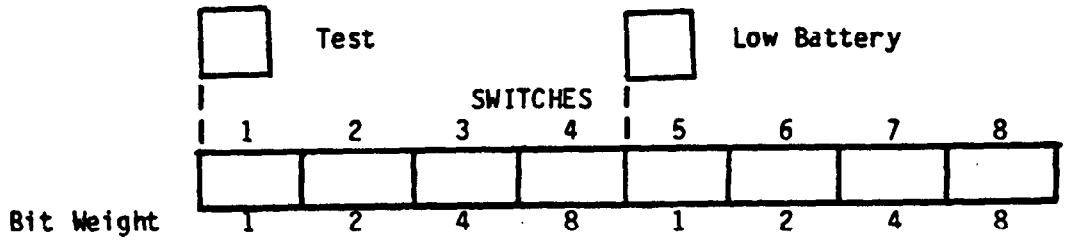
Ademco Low Speed/SESCOA/Radionics Reporting Codes for Zone Bypass and Bypass Restore (Select from 0-->9, B-->F)



PROM Data Group 16

To program, set Rotary Switch to Position 14 ("Not Used") and raise switches for checked boxes representing bits set within the hexadecimal code.

Ademco Low Speed/SESCOA/Radionics Reporting Codes for Test and Low Battery (Select from 0-->9, B-->F)



NOTE: An entry is mandatory for these two codes (e.g. 9) in the indicated formats, even if there is no interest in receiving these reports.

Hexadecimal Coding Chart

Code	Bit Weight 1	2	4	8
0(10)		✓		✓
1	✓			
2		✓		
3	✓	✓		
4			✓	
5	✓		✓	
6		✓	✓	
7	✓	✓	✓	

	Bit Weight 1	2	4	8
8				✓
9	✓			✓
B(11)	✓	✓		✓
C(12)			✓	✓
D(13)	✓		✓	✓
E(14)		✓	✓	✓
F(15)	✓	✓	✓	✓

CAUTION: Throughout these reporting selections, the ability to select full Hexadecimal reporting codes is indicated. Make sure that the receiver, into which your signals are being reported, is capable of accommodating such reporting. For example, the Ademco No. 660/673 is only capable of accepting 1-->9 for all reporting codes.

V. INSTALLATION AND WIRING

INSTALLATION AND WIRING, NO. 4160-12 C-COM

Do not connect the battery or plug-in transformer until all other wiring has been completed. Use of twisted wiring is recommended for all runs, for greater immunity to unwanted induced voltages.

A. **TERMINALS:** (See Diagram 9)

TB1

Terminals

1 **System Arming Status Output:** This terminal provides an output that can be used to control space protection devices such as those in the 760 series (Ultrasonic) and 650 series (Passive Infrared). See the individual instructions accompanying these devices.

It may also be used to control the arming of Ademco's No. 1036/1038 Contact Identification Annunciator. See the individual instructions accompanying the CIA.

The polarity of this output is settable in PROM (LO = ARM, HI = DISARM or HI = ARM, LOW = DISARM)

2 **Red LED Output** (LO = ARM): This output provides system arming status data to the Red LED on remote Keyswitch arming stations (e.g. Nos. 9787, 9789). A steady output is produced to indicate that the system is armed either "AWAY" or "STAY" and a flashing output is produced as a memory of alarm indicator. Up to four Key arming stations can be supported (30 MA MAX.)

3 **Not Used**

4 **Circuit Ground (-) Return**

5 **Not Used**

6 **Loop Status Output** (HI = READY): This output provides zone status data to the Green LED on remote Keyswitch arming stations (e.g. Nos. 9787, 9789). A steady output is produced to indicate that all zones are intact. Up to four Key arming stations can be supported (30 MA MAX.)

7 **Circuit Ground (-) Return**

8, 9, 10 **Not Used**

11 **Test Mode Select Input** (LO = ON): When this terminal is connected to circuit ground (e.g. TB1-7), a test call to the central station is initiated with the Test Code as the report (independent of whether the system is armed

or not). In addition, the system is placed in a test mode (if the system is disarmed and no memory of alarm is present) in which activation of **any** zone causes a brief 1/2 second sounding from the exterior alarm sounder(s), as well as visual zone annunciation on the console's zone identification display and on the appropriate C-COM zone LED (all but zone 5). If the Test Mode is not manually terminated, the system will automatically come out of the Test Mode after 30 minutes.

12 **Not Used**

13 **Arm/Disarm Input** (Momentary HI to ARM or DISARM): This input is normally provided by remote key arming stations (e.g. Nos. 9787, 9789) for the purpose of arming or disarming the system. If the zone status indicates an open zone and arming is desired in spite of the open zone, maintaining this input HI for 5 seconds causes forced arming of the system (automatic shunting of the open zone).

Once the system is disarmed, the silencing of any remaining trouble or alarm memory sound is accomplished by reactivating this HI input. As long as conditions remain that need to be cleared, activation of a key arming station cannot rearm the system, only reset the interior audible annunciations. Up to four arming stations can be supported by the system.

TB2

Terminals

1,3 **Incoming Telco Line Pair:**

Connect TB2-1 to the GREEN lead and TB2-3 to the RED lead on the No. 620 RJ31X Direct Connect Cord. **Do not connect** the latter cord **to the RJ31X jack** until all wiring in the system has been completed.

2 **Cabinet Ground (-):** Connect this terminal to a good earth ground (cold water pipe or electrical box ground is frequently satisfactory for this usage, but in some locales is not). **This connection is critical** to enhancing the immunity of the system to unwanted induced voltages.

4,5 **Internal Handsets:** Connect TB2-4 to the BROWN lead and TB2-5 to the GRAY lead on the No. 620 RJ31X Direct Connect Cord.

6,7 ZONE 1
7,8 ZONE 2
9,10 ZONE 3

Burglary Protection Zones: For each zone, run a pair of wires from that zone's terminals to all protection points in the zone and terminate with a 1000 ohm End-of-Line Resistor (supplied). Each loop has **normal** (250 msec) **response** to open and closed circuit devices such as mats, magnetic contacts, foil, etc. Zones 2 and 3 are PROM programmable for **fast response** (15 msec) to quick acting devices such as vibration contacts and photoelectric units without built-in delay.

NOTE: If fast response is programmed, that zone should not contain devices with exposed metallic contacts (to lessen the chance of false alarm).

All three of these zones may be programmed for entry/exit delay. Zone 3 (Interior) is not armed when the system is armed in the "STAY" mode.

An open or short in these zones will cause an alarm (instant or delayed, as a function of programming and mode selected) when the system is armed.

As cited previously, open circuit devices, such as mats, are directly usable between the wires of each zone (Do not use an Ademco No. 602 Mat Coupler).

Maximum permissible resistance in each zone: 600 ohms (plus 1000 ohm End-of-Line Resistor).

10,11 ZONE 4 **Fire Zone, Normal Burglary Zone, or Day/Night Burglary Zone**

This zone may be PROM programmed for any of the above attributes.

As a Burglary Zone, it has attributes similar to Zones 1-3. It is programmable for **fast response** (15 msec). **As a day/night zone,** it is unique in that a fault during the disarmed period will produce latched audible and visual trouble annunciation at both the console and the keypad and visual annunciation at the C-COM. Optional transmission of a trouble signal to a central station can be programmed.

If used as a fire protection zone, run the supervised fire detection loop from these two terminals to all U.L. Listed thermostats, smoke detectors, combustion detectors or other detection devices to be used. Runs of up to 500 feet may be made with #22 wire. Run one continuous loop (no branches) through all devices, connecting any trouble relay contacts in series with the loop and normally open alarm contacts across the loop's two wires. At the last device, terminate the loop with the furnished 1000 ohm End-of-Line Resistor and a No. 633-12 Supervisory Module, as shown. Maximum permissible resistance in the zone is 600 ohms (plus the 1000 ohm End-of-Line Resistor). The fire zone will detect trouble for an open in the zone and alarm for a short across the zone. A separate console LED annunciates a FIRE alarm.

NOTE: Low current smoke and/or combustion detectors such as the Nos. 622-12, 623-12, or No. 632H12 should be used. NFPA Standard No. 74 requires the use of at least one smoke or combustion detector in every residential installation.

12,13 ZONE 5 **Police Panic Zone:** These terminals provide an additional means to activate the POLICE panic alarm that can be triggered by simultaneous depression of the two POLICE keys on the console. Connect open circuit momentary switches (e.g. Nos. 219, 273, 4024, 4026) in parallel across these terminals or closed circuit momentary switches (e.g. Nos. 273, 4024, 4026) in series with

these terminals. At the last switch, terminate the loop with the furnished 1000 ohm End-of-Line Resistor.

The zone is PROM programmable for either audible or silent alarm. A separate PROM programming option is whether or not the console should be inhibited from indicating the silent alarm (e.g. inhibit for hold-up but permit indication if used for medical).

Maximum permissible resistance in the zone is 600 ohms (plus the 1000 ohm End-of-Line Resistor). This zone has a **normal response** (250 msec) to activations.

13,14 ZONE 6 **Emergency or Burglary Protection Zone**

This zone may be PROM programmed as a 24 hour audible EMERGENCY zone, in which case it provides an additional means to activate the emergency alarm that can be triggered by simultaneous depression of the two EMERG keys on the console. Connect open circuit momentary switches (e.g. Nos. 219, 273, 4024, 4026) in parallel across these terminals or closed circuit momentary switches (e.g. Nos. 273, 4024, 4026) in series with these terminals.

This zone may alternatively be PROM programmed as a night burglary protection zone. It has attributes similar to Zones 1-3. The zone is strictly an instant alarm zone (not programmable for delay). When the zone is programmed for burglary protection, the EMERG keys on the console are not usable.

The zone has **normal response** (250 msec) to alarm activations. At the last device, terminate the loop with the furnished 1000 ohm End-of-Line Resistor. Maximum permissible resistance in the zone is 600 ohms (plus the 1000 ohm End-of-Line Resistor).

15 **Console/Keypad Data Input:** This terminal is one of the four wire connection points (GREEN) for remote keypads and security consoles. Data entered from the keypads on these units is fed into the C-COM at this terminal.

16 **Circuit Ground (-) Return:** This terminal is one of the four wire connection points (BLACK) for remote keypads and security consoles.

17 **Console/Kepad Data Output:** This terminal is one of the four wire connection points (YELLOW) for remote keypads and security consoles. Data from the C-COM to activate displays and audible sounding is fed to the keypads and consoles from this terminal.

18 **Circuit Ground (-) Return**

19 **Switched Power Output:** This terminal provides a HI output (5 MA. MAX) when communication is underway, for control of a listen-in device or for activation of a remote LED.

20 **6.5 Volt Continuous Power (+) for Powering Remote Keypads and Security Consoles:** 675 MA. MAX.

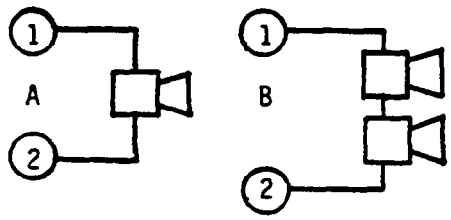
TB3

Terminals

1,2 **External Siren Speaker** (optional): Nos. 705-8 or 713 speakers or other like 8 ohm speakers may be used. This output is only active if the **optional** plug-in No. 4165 Siren Driver is added to the system. The output is driven by 12 volts while AC is present and reverts to 6 volts when AC is absent and operation is from the standby battery. Up to 25 watts of power may be delivered to the siren speaker(s). Speakers may be connected singly or in parallel (for concentrated sound intensity) at full output voltage or in series (for reduced sound intensity but spread over a wider area) with each speaker receiving half voltage. Diagram 1 indicates the allowable speaker configurations for staying within the siren driver's power limit capability.

NOTE: This output will be produced in both the System Test and the Fire Test Modes.

ALLOWABLE SPEAKER CONFIGURATIONS		
No. 705-8 737-10 738-10 (8 OHM,10W)	No. 737-20 738-20 (8 OHM,20W)	No. 713 (8 OHM,30W)
B,C	A,B,C	A,B,C



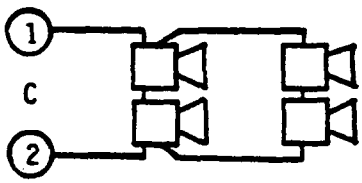


DIAGRAM 1. SIREN SPEAKER CONFIGURATIONS

3(-), 4(+) **12V.DC power for Smoke (Nos. 622-12 or 623-12) or Combustion (No. 632H12) Detectors** (interruptible by the FIRE TEST/RESET switch). **Observe polarity.** Use wire sizes in accordance with the following tabulation and connect the power terminals of the detectors in parallel:

SMOKE OR COMBUSTION DETECTOR POWER WIRING			
Maximum distance to farthest detector	Number of No. 622-12, 623-12 and/or 632H12's		
	1 or 2	3 to 6	7 to 10
100 feet	#22	#22	#20
200	#22	#20	#18
300	#22	#18	#16
500	#20	#16	*

*Use separate power runs for up to 6 detectors each.

NOTE: Do not exceed the auxiliary total output current limitations described under SPECIFICATIONS.

5(+), 6(-) **Continuous 12V.DC Auxiliary Power for Accessories: Observe polarity.** These terminals provide power for accessories such as space protection devices, e.g. ultrasonic or passive infrared detectors, photoelectrics, etc.

The **total** combined current drain from these terminals and the smoke detector power terminals (3,4) must not exceed 300 MA. (See SPECIFICATIONS).

7(+), 8(-) **Alarm Bell Voltage:** These terminals provide 12V.DC during an audible alarm, at a drain of up to 2A. This output is steady for burglary and audible panic and pulses for fire.

NOTE: This output will be produced in both the System Test and the Fire Test Modes.

9 **Circuit Ground Return (-):** For supplemental use with sounder power.

10,11 **Power Input, 18V.AC:** Connect these terminals to the secondary output terminals of the No. 1323 Transformer.

Do not plug in the transformer yet, or connect the battery.

B. **ADDITIONAL CONNECTION POSTS** (See Diagram 9)

These posts are provided to permit the connection of accessory devices (such as the No. 674 Select-A-Line and the No. 675 Ground Start Module) that require special signals.

GROUND START OUTPUT POST: An output point to provide a momentary input (until dial tone is obtained) to a No. 675 Ground Start Module which causes its **relay** to momentarily ground the incoming phone line for the purpose of obtaining a dial tone outboard of a PBX.

ALTERNATE TELCO LINE OUTPUT POST: An output point that only provides an alternate line selection request to a No. 674 Select-A-Line if there is a failure to receive "Kissoff" from the primary telco line receiver. If there is a failure to receive "Kissoff" on the first attempt, this output will request service from the alternate phone line. If there is a failure to receive "Kissoff" on the alternate phone line, this output will switch back to primary line selection. If a No. 659* Telco Line Fault Monitor is used and detects a line cut, it will override the alternate line selection described here and maintain transmission on the intact line.

*Use of this product will require usage of a No. 687 Voltage Regulator to develop the power necessary to operate the No. 659.

INSTALLATION AND WIRING, NO. 5321 SECURITY CONSOLE(S)

1. **Select a location for the console** that will be convenient for the entering of system commands and the receiving of the various visual and audible system signals.

2. **Run wiring for connection of the console to the Control/Communicator.** Use a 4 wire run (See Diagram 2). A second console (if used) may be connected in parallel with the first, as indicated in Diagram 2, with a separate wiring run from the Control/Communicator.

   For runs of less than 100 feet, 4 #22 conductors may be used (e.g. No. 295 cable or 2 No. 289 Twisted Pairs). For longer runs, the wire size to be used depends upon the distance from the C-COM. Use the following table to determine the correct wire size.

DISTANCE TO C-COM	WIRE SIZE	ADEMCO NO. (TWISTED PAIRS)
To 100'	#22	*2 No. 289
100' to 200'	#20	2 No. 283
200' to 300'	#18	2 No. 284

   *or No. 295 Four Conductor (#22) Cable. Twisted pairs are recommended, however, for greater immunity to unwanted induced voltages.

3. **Mount the console as follows:** Snap off the front cover of the console, after pushing-in the lower tab. Move up the keypad retaining tab above the keypad illumination bulb to free the keypad and PC board assembly. Remove the assembly. Disconnect the speaker cable by unplugging the brown connector from the PC board. Slide out the transmitter data drawer to expose one of the mounting holes and use the back of the console as a template to locate the 3 screw mounting holes (2 keyslot) and the wiring access hole. Drill the necessary holes, route the wiring in the wall through the access hole and mount the back of the console. Splice the wire run to the console's wires and plug in the speaker cable. Push the interface wiring back into the wall and snap in the keypad and PC board assembly. Snap on the front cover.

   Alternatively, if mounting with only two screws via the keyslot holes on the back of the unit is acceptable, the mounting template supplied with the unit may be used to locate the two holes and the wiring access hole. In this case, the PC board need not be removed.

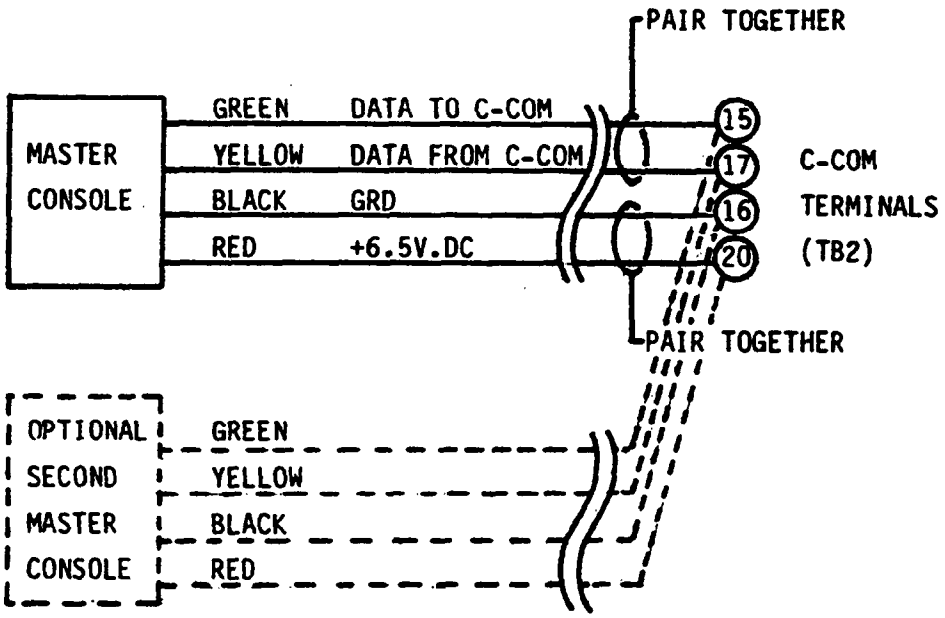


DIAGRAM 2: CONSOLE CONNECTIONS

INSTALLATION AND WIRING, NO. 5314 REMOTE KEYPAD(S)

1. **Select the locations for the remote keypads** that will be convenient for the entering of system commands and the receiving of the various visual and audible system signals.

2. **Remove the front cover of the Keypad** by squeezing its sides near the top or bottom and pulling outward.

3. **Remove the PC board** by spreading the two plastic retaining tabs located near the center of the board's side edges. SEE OPTIONAL STEP 10.

4. **Use the back of the case as a template** to mark the two mounting holes and the cable access slot.

5. **Cut an opening in the wall,** within the marked location for the cable access slot, for wiring from the Control/Communicator.

6. **Mount the back of the case to the wall.**

7. **Bring the wires through the access slot and splice the remote Keypad's 4-wire cable to the control/communicator wiring** in accordance with Diagram 3. The control/communicator is assumed to be already connected and capable of supplying power, but not yet powered.

   Unlike the security consoles, the remote keypads can be daisy chained together up to the maximum number of keypads supported (4) and their wire run should be separate from the run to a security console.

   For runs of less than 100 feet, 4 #22 conductors may be used (e.g. No. 295 cable or 2 No. 289 Twisted Pairs). For longer runs, the wire size to be used depends upon the distance from the C-COM. Use the following table to determine the correct wire size.

DISTANCE TO C-COM	WIRE SIZE	ADEMCO NO. (TWISTED PAIRS)
To 100'	#22	*2 No. 289
100' to 200'	#20	2 No. 283
200' to 300'	#18	2 No. 284

*or No. 295, Four Conductor (#22) Cable. Twisted pairs are recommended, however, for greater immunity to unwanted induced voltages.

8. **Remount the PC board** by snapping it into its retaining tabs. Push any excess cable back into the wall.

9. **Snap the front cover onto the back of the unit.**

10. **OPTIONAL. If it is desired to mount a Keypad side-by-side** with one or more Contact Identification Annunciators, a metal locking plate is provided to couple units together. THIS PLATE, IF USED MUST BE MOUNTED SUBSEQUENT TO STEP 3 OF THIS "INSTALLATION AND WIRING" SECTION.

    a. **Position the plate in the molded recessed walls on the backs of two adjacent case backs**, with its locking tabs inserted through the slots in the case backs.

    b. **Bend the plate's four central tabs** from the inside of the case backs, thus locking the backs together.

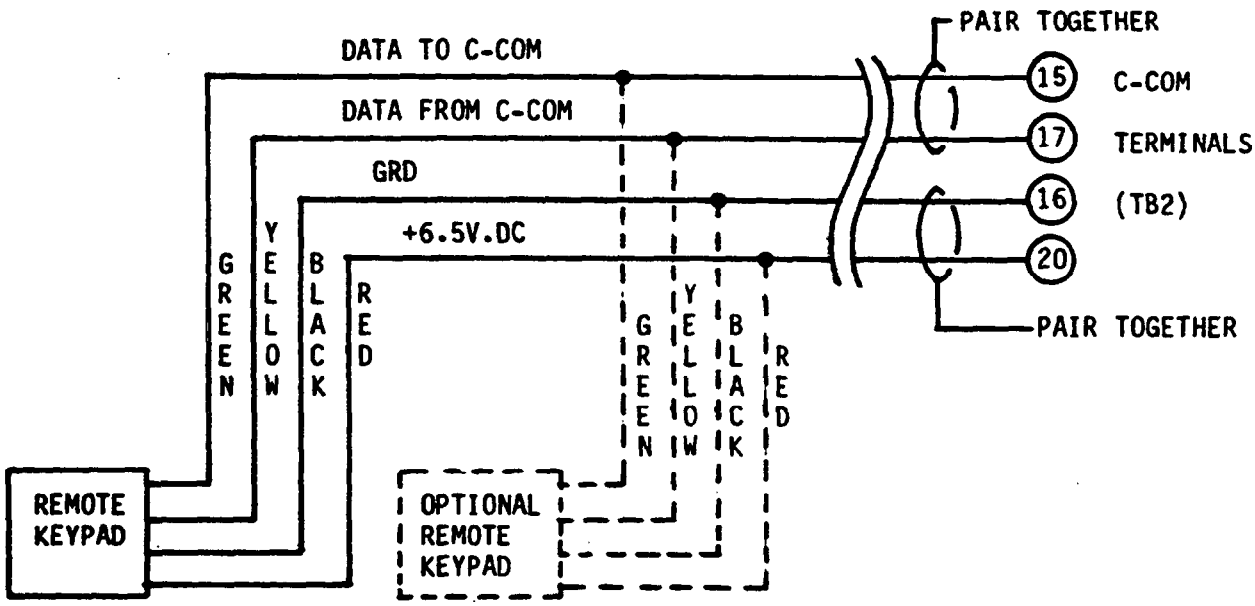


DIAGRAM 3. KEYPAD CONNECTIONS

VI. SYSTEM CHECKOUT

Perform these tests after the wiring and option selections desired in the previous sections have been completed.

1. **Install both the control and the communicator PROMs** (No. 691) into their respective sockets (see Diagram 4) after making certain that there is no power going to the system. Take care to align the PROM orientation marks. Install the PROMs using the No. 692 Insertion Tool.

2. **Connect the telephone line and handsets via a No. 620 Direct Connect Cord** (See Diagram 9).

3. **Connect the battery** by connecting the plug at the end of the black and red wires coming from the battery to the socket connector at the end of black and red wires coming from the circuit board. Rapid beeping will occur, 0 will briefly appear on the console display at the upper right, and the READY light will go on. Enter the security code and OFF to stop the beeping.

4. **Plug the transformer into a 110V.AC outlet that is ON 24 hours a day.** The POWER LED will light on the Security Console and on the C-COM.

5. **Observe the Digital Display on the Security Console after depressing the READY Key.** Nothing will appear if the protective loops are properly wired and all contacts are properly set. Similarly, none of the zone status LEDs on the C-COM will be lit.

6. **With no alarm or trouble being indicated,** do the following and observe the response:

   a. **Open each of the burglary zones momentarily,** one at a time. The appropriate zone number should appear on the Security Console Zone I.D. Display and the appropriate zone LED should light on the C-COM while the zone is open.

   b. **Short each of the burglary zones momentarily,** one at a time. The appropriate zone number should appear on the Security Console Zone I.D. Display and the appropriate zone LED should light on the C-COM while the zone is shorted.

NOTE: **If Zone 4 has been set up as a Day/Night Zone** (trouble by day, alarm by night), the above actions will also cause the CHECK display to light on the Security Console, the CHK.BYP LED on any Remote Keypad (if used) to light, and the Zone 4 TRBL LED on the C-COM to light. In addition, the Security Console and the Remote Keypad will produce a rapidly pulsing sound.

7. **If zone 4 has been set up as a fire zone,** do the following:

   a. **Observe the CHECK display on the Security Console or the CHK.BYP LED on any Remote Keypad or the Zone 4 TRBL LED on the C-COM.** They should be off if the protective loop and detector power circuits are properly wired.

b. **Disconnect one wire of the fire zone.** The CHECK display on the Security Console and the Zone 4 TRBL LED on the C-COM should light and the CHK.BYP LED on any Remote Keypad should flash. A rapidly pulsing tone should be heard from the Security Console's speaker and a rapidly pulsing buzz should be heard from the Remote Keypad's buzzer.

c. **Silence the trouble sounding** by keying the security code and depressing OFF at a console or keypad (or by turning a key at a key arming station). The sound should stop but the visual LED indications should continue.

d. **Reconnect the fire zone wire.** All visual fire trouble indications should go out.

e. **Momentarily short the fire zone.** A fire alarm should be triggered, accompanied by a loud rapidly alternating or pulsed rapidly alternating (depending upon configuration programmed) two-tone siren sound from both the console and any other interior or exterior speakers used (or by a pulsed bell output). In addition, the FIRE LED on the Security Console will light and the Zone 4 Alarm LED on the C-COM will light.

   Silence the alarm by using the FIRE TEST/RESET switch on the C-COM, by entering the security code followed by OFF at a console or keypad, or by turning the arm/disarm key at a keyswitch arming station.

NOTES:

1. The battery may not be fully charged. **If this test is tried with a low battery there will not be enough power to ring bells** (sirens operate from the unregulated 12VAC when AC is present and are unaffected). Let the battery charge (transformer plugged in) for at least one-half hour if the battery is low.

2. If the fire zone remains shorted after the alarm is silenced (such as if a smoke detector were still filled with smoke), the system will enter the fire trouble mode until the short has been eliminated. When the zone has restored, the system will return to normal.

8. **Test the Zone 5 panic circuit** by momentarily shorting terminals TB-12 and 13, by operating an external, zone connected panic switch, or by depressing both of the POLICE keys on the Security Console. If the zone is programmed for audible alarm, both the console and exterior speakers should sound [steady two-tone siren sound (slowly alternating or rapidly alternating, as a function of sound programmed)]. If bells are used, a steady bell sound will be produced. The POLICE LED on the console will light. These conditions continue after the short is removed. A message will be transmitted to the central station. Reset the system by entering the security code at a console or keypad or by turning the arm/disarm key at a keyswitch arming station.

   If the zone is programmed for silent operation, none of the above mentioned sounds will be heard. The POLICE LED may or may not light as a function of selection of a separate programming option for silent panic.

9. **Shunt any zone** (permitted by installer programming) **from a console or a keypad** by entering the security code followed by BYPASS depression and the number of the zone to be bypassed. The BYPASS LED on the console will light, the CHK.BYP LED on any remote keypad will light steady and the zone LED on the C-COM for the bypassed zone will slowly flash.

   Activate that zone to see if a fault is indicated by the Zone I.D. display at the console, by the READY LED going out at a console, a keypad or a key arming station or by the zone LED lighting at the C-COM. None of the above cited displays should indicate the presence of the zone fault.

   Turn the system OFF.

10. **Force arm the system,** automatically shunting any purposely faulted zone (permitted by installer programming), **from a console or a keypad** by entering the security code followed by the arming command (AWAY or STAY) and the depression of BYPASS or by turning the arm/disarm key clockwise on a key arming station and holding it for 5 seconds before allowing it to return to the key removal position. The BYPASS LED on the console will light, the CHK.BYP LED on any remote keypad will light steady and the zone LED on the C-COM for the bypassed zone will slowly flash.

    Turn the system OFF.

11. **Arm the system from a console or keypad and** immediately **follow** the arming sequence of security code entry plus arming command (AWAY or STAY) **by depression of the INSTANT key.** The INSTANT LED on the console should light. After allowing for the exit delay to expire, any fault introduced in the entry/exit zone will cause an immediate alarm. Disarm the system and note that the INSTANT LED will go out.

12. **Turn on the Chime Mode** by entering the security code followed by depression of the CHIME key during the disarmed state. Open and close any contact in zone 1 and a single tone will be produced at any console or keypad for each fault, announcing the entry of someone. Remove the Chime Mode by reentering the security code followed by depression of the CHIME key.

13. **Conduct a burglary test** (or of any zone if desired) by shorting terminals TB1-7 to TB1-11 during the disarmed state by a N.O. switch or by jumper. As long as these terminals remain shorted, the system is in the Test Mode. It should be noted, however, that the duration of the Test Mode is limited to approximately 30 minutes, at which time the mode will automatically terminate and the system will return to the disarmed state (where both fire, if programmed, and panic alarm capabilities are operative).

    In this mode, a momentary fault in any zone will cause a loud single tone from the console as well as a 1/2 second alarm sound from the exterior siren or bell.

14. **All the zone contacts may now be checked** by disturbing each contact in each zone and listening for the short siren and/or bell sound (whichever is used).

15. **Remove the Test Mode jumper** to restore the system to normal functioning.

16. **Disconnect AC power to the system.** The POWER LED on the console and on the C-COM should go out within 5 seconds, but the system should remain operable. After an installer PROM programmed AC Loss delay (up to 36 minutes), a rapidly pulsing trouble sound will be produced at consoles and keypads and an AC Loss report will be communicated to the central station. Keying of the security code and OFF or turning of the arm/disarm key is required to silence the trouble sounding.

    NOTE: The AC Loss sounding is suppressed while the system is armed. The sound is only produced when the OFF LED (on the console) is lit.

    Restore AC power to the system.

17. **Arm the system and simulate leaving the premises** by following the procedures in the OPERATION Section.

18. **Simulate by entering the premises and disarm the system** by following the procedure given in the OPERATION Section.

VII. OPERATION

AC POWER LED ON THE C-COM AND EACH SECURITY CONSOLE SHOULD BE LIT AT ALL TIMES. If out, AC failure is indicated and the system is operating on battery. Check plug-in transformer or for power failure.

To Arm Burglary System

1. **Make sure the AC POWER LED is lit.**

2. **The READY LED** on the console, remote keypad, or remote key arming station **should be lit** to indicate that all zones are properly closed.

   If the READY LED is not lit, check the Zone I.D. Display on the console (depress READY key to get display) or the zone LEDs on the C-COM. A faulted zone indication denotes a fault which must be cleared or the zone shunted (prior to arming by individual zone shunt or during arming by the special automatic shunting forced arming sequence, in order to arm the system). Make sure that the exit door is closed!

3. **Enter the security code at the console or remote keypad or turn the arm/disarm key.**

   a) **If remaining on the premises after arming,** immediately (within 2 seconds of code entry) press the STAY key. Interior zone 3 should now be turned OFF and the rest of burglary zones in the system should now be armed (entry/exit zones after exit delay timeout). This is indicated at consoles and keypads by 3 brief tones and the lighting of the STAY LED.

   b) **If leaving the premises after arming,** immediately (within 2 seconds of code entry) press the AWAY key. All burglary zones should now be armed (entry/exit zones after exit delay timeout). This is indicated at consoles and keypads by 2 brief tones and the lighting of the AWAY LED.

NOTE: When key arming stations are used, the only type of arming that can be performed at them is AWAY Mode arming. The RED LED on this type of station indicates arming of any type - AWAY or STAY.

Depart before the exit delay period ends, via an entry/exit door.

NOTE: Failure to arm is indicated by a single tone at consoles and keypads and by failure to turn off the OFF LED (at consoles) and turn on either the AWAY or STAY LED (or the Red LED at key arming stations).

To Disarm Burglary System:

1. **When entering the premises, enter only via the entry/exit door.** A slowly pulsing tone will be heard from consoles and keypads during the entry delay period.

   NOTE: If a rapidly pulsing tone is heard, it is an indication of the memory of an alarm that took place previously. The user should immediately leave the premises and call the police from a safe location.

   If already within premises, go directly to the nearest console, keypad, or key arming station.

2. **Before the entry delay period (if any) ends, enter the security code and OFF or turn arm/disarm key.**

   NOTE: While the system is disarmed, the READY and Zone LEDs will go on and off as the protected zones open and close during normal operation of doors, windows, PIRs, etc....

To Test Fire System:

The fire system should be tested at least every week.

IMPORTANT: The test described below causes communicator transmission of a Test Report to the central station.

1. **Slide the FIRE TEST/RESET switch on the C-COM to the right and hold it in that position.** The fire alarm will sound and the FIRE LED will light. While this switch is held to the right, the AC driven power supply is interrupted, thus checking the battery by sounding the alarm from battery alone.

2. **Release the FIRE TEST/RESET switch and reset the system by sliding the same switch to the left to the RESET position.** This will silence the alarm sounding. Clearing of the FIRE LED indication from the console and from the C-COM will either require security code entry plus OFF depression at a console or a keypad or turning of the key in a key arming station.

To Test Burglary System:

The burglary system should be tested as follows every week:

IMPORTANT: The central station should be alerted before conducting the below described test, particularly if the communicator messages are not programmed by the installer for delayed transmission.

1. **Arm the system in the AWAY Mode.**

2. **Open a window or other sensor in a perimeter zone.**

3. **The console speaker will sound a burglary alarm immediately.**

4. **Either immediately or delayed** (depending upon PROM programming), **the exterior alarm sounder will produce the burglary sound.**

5. At this time or 16 seconds later (depending upon PROM programming), the **communicator will transmit an alarm message** to the central station.

6. **Disarm the system by code entry and OFF depression or by turning the key** at a key arming station.

To Activate a Police Alarm

1. a. **Depress both POLICE keys** simultaneously at the console.

   b. **Depress a momentary switch** connected to Zone 5.

2. **If the zone is programmed for audible alarm,** the alarm sounder will commence immediately, the POLICE LED on the console will light, and communicator will transmit a message to the central station (delayed by 16 seconds, if so programmed).

3. **If the zone is programmed for silent alarm,** the communicator will transmit a message to the central station. A separate programming option determines if the POLICE LED and the PHONE message on the console should light.

4. **To reset, enter the security code** at a console or a keypad **and depress OFF or turn the key** at a key arming station.

To Activate an Emergency Alarm

The Emergency Alarm is only operative if Zone 6 is programmed as a 24 hour zone. Otherwise, it is a burglary zone.

1. a. **Depress both EMERG keys simultaneously** at the console.

   b. **Depress a momentary switch** connected to Zone 6.

2. **Immediately a loud alarm sound will be produced** from the console and exterior sounders. This sound is the same as the burglary and police (if audible) alarm sound. The EMERG LED on the console and the Zone 6 LED on the C-COM will light. An emergency message will be transmitted to the central station via telco linkage (PHONE message will light).

3. **To reset, enter the security code** at a console or a keypad **and depress OFF or turn the key** at a key arming station.

To Enter Secondary Security Code

This action may be done while the system is armed or disarmed.

1. **Key master security code** (in PROM) **and depress CODE key** at a console or keypad.

2. **Immediately follow with** entry of the **4 digit secondary code.**

   This secondary code can permit every function that the master security code can allow except changing of the secondary security code. If the master code is used to arm the system, the secondary code is blocked from being able to disarm the system (i.e. master code takes precedence over the secondary code).

3. **Removal of the secondary code** is accomplished by entering the master security code, by depressing CODE, and by entering either a new secondary code or the master code.

To Activate the Chime Feature

This mode may only be entered during the disarmed state.

1. **Enter the security code followed by CHIME depression** at a console or keypad.

2. **Any opening in Zone 1 will result in a loud single tone** being produced at consoles and keypads, annunciating entry.

3. **End the mode by entering the security code followed by CHIME depression.**

To Quicken the Execution of Keyed Functions

Up to a 2 second delay exists from the time that a function key is pressed following security code entry until the function is executed. This delay can be terminated by pressing the ENTER key at the end of any keying sequence (e.g. Security Code Entry, STAY, ENTER).

VIII. TURNING THE SYSTEM OVER TO USER

1. **Fully explain the operation of the system to the user** by going through each of the features as well as the OWNERS MANUAL supplied.

2. **Describe the operation of each zone.** Clarify which contacts or devices are used at night, which are used in the interior, which are day/night (if programmed).

3. **Encourage the user to find and remedy their own zone problems when arming the system.** Show the user how to individually bypass zones as well as how to force arm the system in the presence of a bad zone.

IX. GENERAL SPECIFICATIONS:

A. No. 4160-12 Control/Communicator

See Diagrams 4 and 9.

1. **Physical:**

Width:	14"	(36.5 cm)
Height:	12"	(30.5 cm)
Depth:	3.3"	(8.4 cm)

2. **Electrical:**

Voltage: 18 VAC (from No. 1323 30VA Plug-in Transformer)

Maximum Permissible Resistance (per zone): 600 Ohms (plus end-of-line resistor: 1000 Ohms)

Zone Response: 250 msec (normal), 15 msec (fast)

Bell Relay (Wet) Output: SPST, Maximum Output: 2A @ 12V.DC

12V.DC Regulated Output:

Continuous Power for Accessories: 300 mA
Continuous Power for Smoke Detectors: Same 300 mA pool defined above.
6.5 DC Regulated Output
Continuous Power for Console and Keypads: 675 mA

12 V.DC Siren Power Output: On Alarm: 2A max.

Arm/Disarm Status Output: Armed: 0V
Disarmed: +12 V.DC, 10 mA

Fuses: Three fuses -
No. 90-2: 2A 6V auxiliary power for consoles/keypads.

No. 90-12: 3A 12V output for optional siren driver (No. 4165) and speaker power, auxiliary current, fire detectors, bell power

No. 90-17: 4A for battery protection.

Standby: 12V Sealed Lead Acid Rechargeable Battery, 2.5 AH (No. 584) or 5 AH (No. BP1)

	MAXIMUM STANDBY TIMES WITH VARIOUS AUXILIARY, SMOKE/COMBUSTION DETECTOR, AND CONSOLE CONTINUOUS LOAD (ASSUMES ONE SECURITY CONSOLE PLUS ONE REMOTE KEYPAD, NO ALARMS)						
MODEL	MA. 0	50	100	150	200	250	300
4160SB (2.5 AH)	HRS. 7.5	6.7	5.9	5.3	4.8	4.3	4
4160XB (5 AH)	HRS. 15	13.3	11.8	10.5	9.5	8.6	8

Battery normally need not be replaced for at least 5 years.

3. **Transmission Format:** Low Speed Ademco (and Silent Knight)
Sescoa
Radionics Expanded (Superfast)
Ademco High Speed, Expanded.

4. **FCC Registration No:** AC 398U - 68192 - AL - E
Ringer Equivalence 0.0.B.

B. **No. 4165 Siren Driver (optional)**
See Diagram 5.

1. **Physical:**
Width: 2-5/8" (6.6 cm)
Height: 5-5/8" (14.2 cm)
Depth: 1" (2.5 cm)

2. **Electrical:**
See Diagram 9.

Voltage: Operates from 12V.DC regulated when AC is present and in absence of AC, from standby battery.

Load Capability: 2A. max. at 12V.DC from C-COM, providing up to 25 watts into an 8 ohm speaker load. Speaker input impedance must not be less than 8 ohms.

Interface: Plug-in connection from rear of C-COM P.C. board.

C. **No. 5321 Security Console**
See Diagram 6.

1. **Physical:**
Width: 6-1/2" (17.7 cm)
requires additional 3" (7.6 cm) clearance at right, if opening of zone data drawer is desirable.
Height: 4-3/8" (11.1 cm)
Depth: 1-3/8" (3.5 cm)

2. **Electrical:**

Current Drain: 220 mA @6.5V.DC from C-COM.
Interface: 4-wire connection to C-COM.

D. **No. 5314 Remote Keypad**
See Diagram 7.

1. **Physical:**
Width: 3-1/2" (8.9 cm)
Height: 5-3/8" (13.7 cm)
Depth: 1-1/4" (3.2 cm)

2. **Electrical:**

Current Drain: 55 mA @ 6.5V.DC from C-COM.
Interface: 4-wire connection to C-COM.

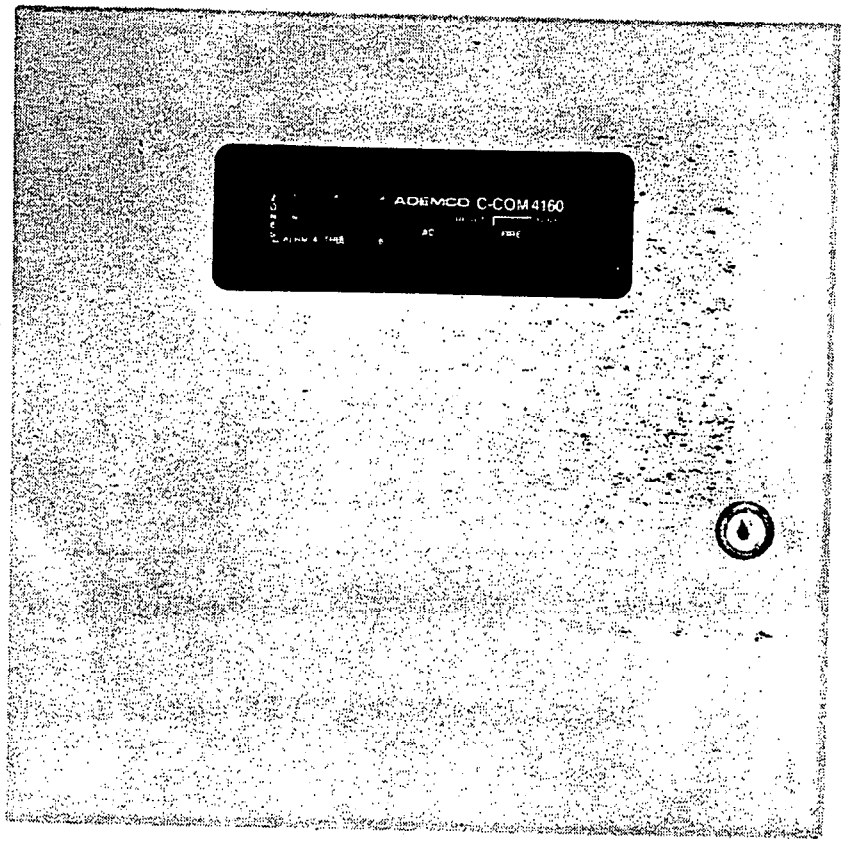


Diagram 4: No. 4160-12 CONTROL/COMMUNICATOR

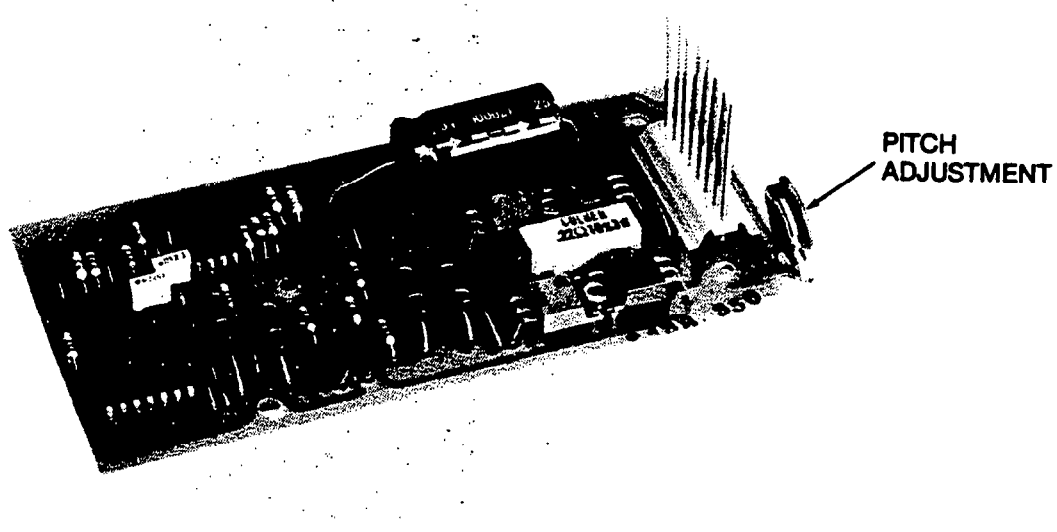


Diagram 5: No. 4165 SIREN DRIVER

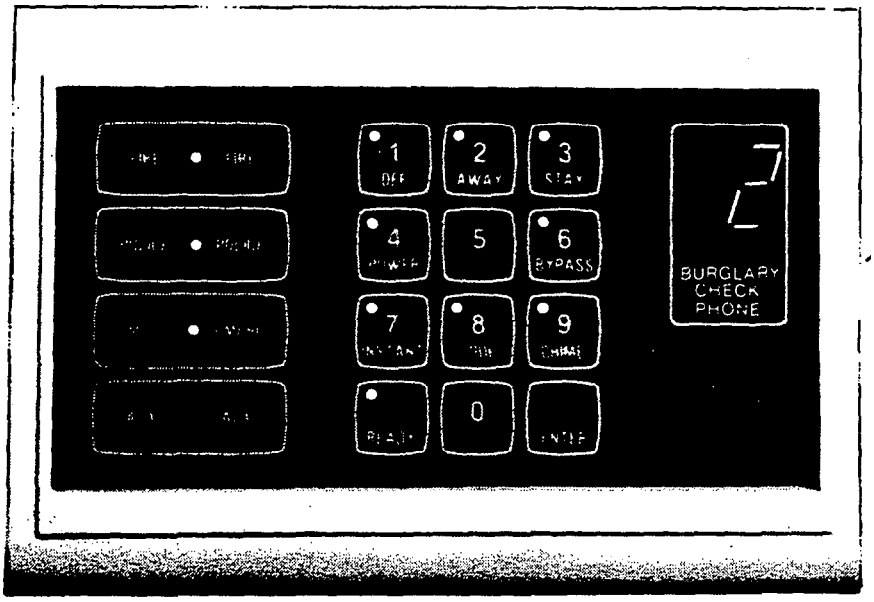


Diagram 6: No. 5321 SECURITY CONSOLE

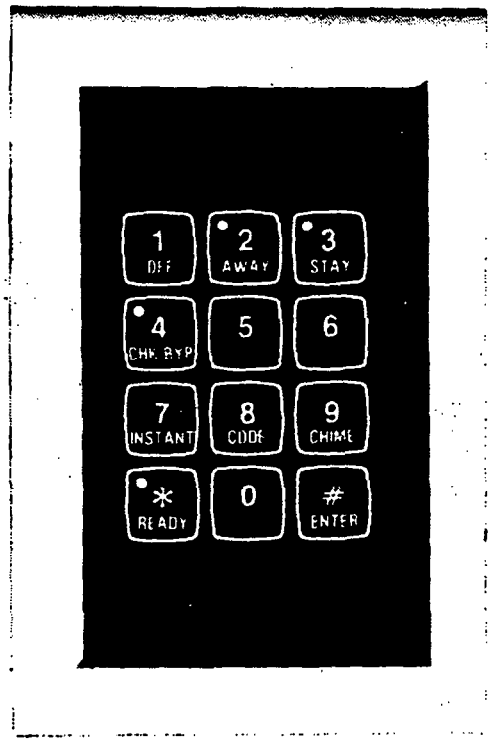


Diagram 7: No. 5314 REMOTE DIGITAL KEYPAD

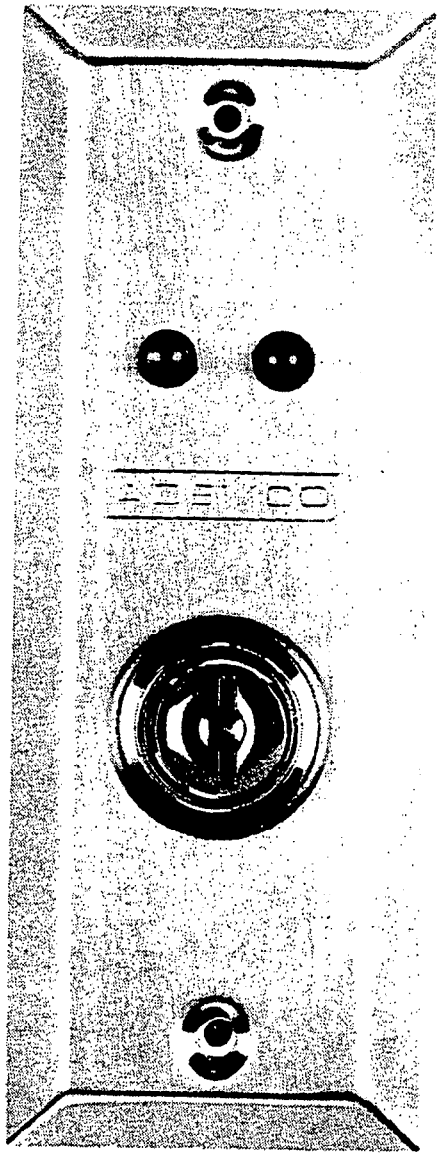
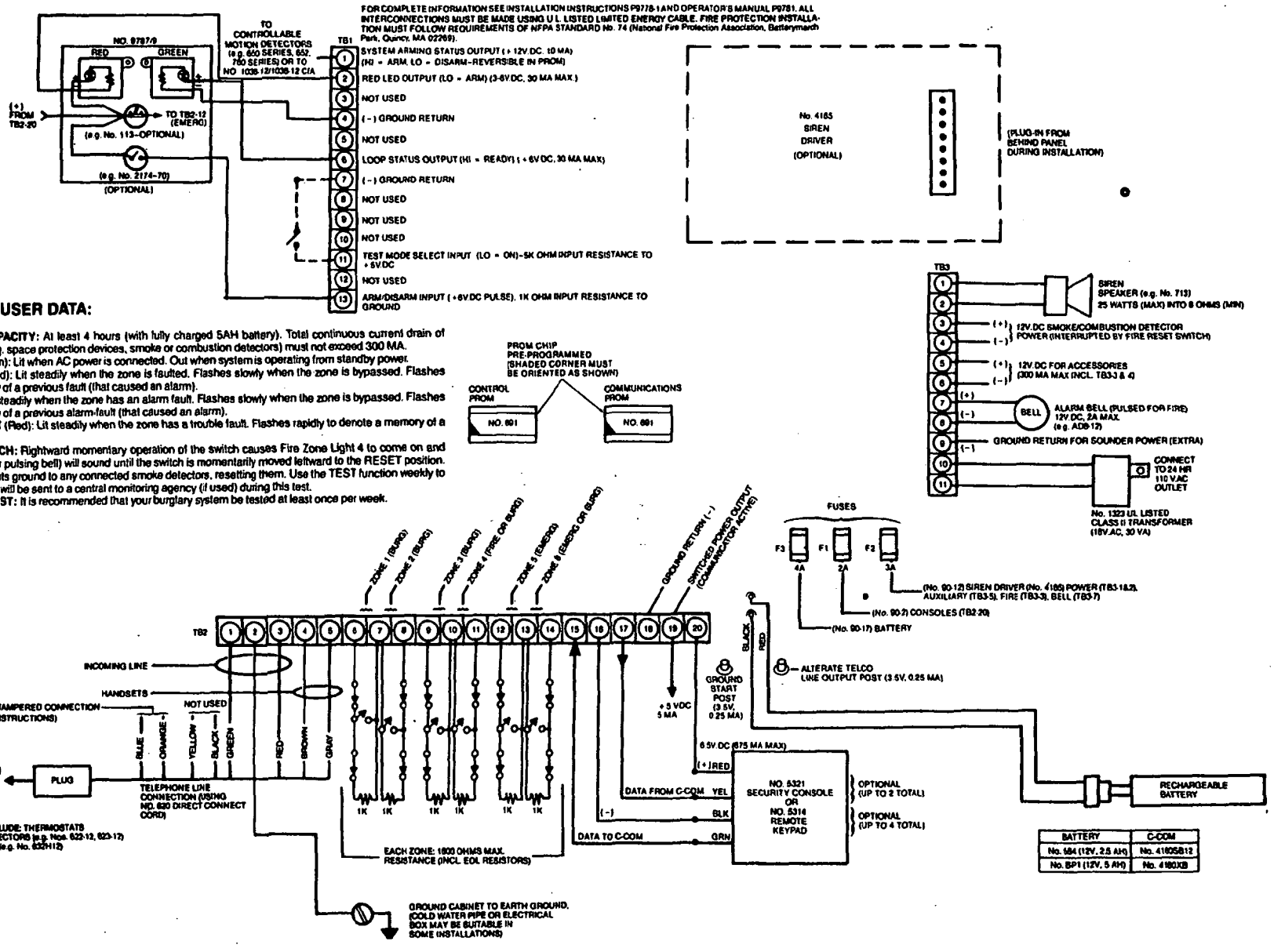


Diagram 8: No. 9787/9 REMOTE KEYSWITCH ARMING STATION


FOR COMPLETE INFORMATION SEE INSTALLATION INSTRUCTIONS P9778-1 AND OPERATOR'S MANUAL P9781. ALL INTERCONNECTIONS MUST BE MADE USING U L. LISTED LIMITED ENERGY CABLE. FIRE PROTECTION INSTALLATION MUST FOLLOW REQUIREMENTS OF NFPA STANDARD No. 74 (National Fire Protection Association, Batterymarch Park, Quincy, MA 02269).
NO. 9797/9
RED
GREEN
TO CONTROLLABLE MOTION DETECTORS (e.g. 650 SERIES, 652, 750 SERIES) OR TO NO. 1035 12/1035-12 C/A
TB1
SYSTEM ARMING STATUS OUTPUT (+12V.DC. 10 MA) (HI = ARM, LO = DISARM-REVERSIBLE IN PROM)
RED LED OUTPUT (LO = ARM) (3-6V.DC, 30 MA MAX.)
NOT USED
(-) GROUND RETURN
NOT USED
LOOP STATUS OUTPUT (HI = READY) (+6V.DC, 30 MA MAX)
(-) GROUND RETURN
NOT USED
NOT USED
NOT USED
TEST MODE SELECT INPUT (LO = ON)-5K OHM INPUT RESISTANCE TO +5V.DC
NOT USED
ARM/DISARM INPUT (+6V.DC PULSE), 1K OHM INPUT RESISTANCE TO GROUND
(+) FROM TB2-20
TO TB2-12 (EMERG)
(e.g. No. 113-OPTIONAL)
(e.g. No. 2174-70) (OPTIONAL)
No. 4165 SIREN DRIVER (OPTIONAL)
(PLUG-IN FROM BEHIND PANEL DURING INSTALLATION)
TB3
SIREN SPEAKER (e.g. No. 713) 25 WATTS (MAX) INTO 8 OHMS (MIN)
12V.DC SMOKE/COMBUSTION DETECTOR POWER (INTERRUPTED BY FIRE RESET SWITCH)
12V.DC FOR ACCESSORIES (300 MA MAX INCL. TB3-3 & 4)
BELL
ALARM BELL (PULSED FOR FIRE) 12V DC, 2A MAX. (e.g. ADB-12)
GROUND RETURN FOR SOUNDER POWER (EXTRA)
CONNECT TO 24 HR 110 V.AC OUTLET
No. 1323 UL LISTED CLASS II TRANSFORMER (18V.AC, 30 VA)
PROM CHIP PRE-PROGRAMMED (SHADED CORNER MUST BE ORIENTED AS SHOWN)
CONTROL PROM
NO. 691
COMMUNICATIONS PROM
NO. 691
FUSES
F3 4A
F1 2A
F2 3A
(No. 90-12) SIREN DRIVER (No. 4165) POWER (TB3-1&2), AUXILIARY (TB3-5), FIRE (TB3-3), BELL (TB3-7)
(No. 90-7) CONSOLES (TB2-20)
(No. 90-17) BATTERY
ZONE 1 (BURG)
ZONE 2 (BURG)
ZONE 3 (BURG)
ZONE 4 (FIRE OR BURG)
ZONE 5 (EMERG)
ZONE 6 (EMERG OR BURG)
GROUND RETURN (-)
SWITCHED POWER OUTPUT (COMMUNICATOR ACTIVE)
TB2
INCOMING LINE
HANDSETS
FOR OPTIONAL TAMPERED CONNECTION (SEE NO. 620'S INSTRUCTIONS)
NOT USED
BLUE
ORANGE
YELLOW
BLACK
GREEN
RED
BROWN
GRAY
PLUG INTO JACK (USOC-RJ31X) FURNISHED AND INSTALLED BY TELEPHONE CO.
PLUG
TELEPHONE LINE CONNECTION (USING NO. 620 DIRECT CONNECT CORD)
NOTE:
TYPICAL FIRE DETECTORS INCLUDE: THERMOSTATS (e.g. Nos. 521, 533), SMOKE DETECTORS (e.g. Nos. 522-12, 523-12) OR COMBUSTION DETECTORS (e.g. No. 632H12)
1K
EACH ZONE: 1800 OHMS MAX. RESISTANCE (INCL. EOL RESISTORS)
+5 VDC 5 MA
GROUND START POST (3.5V, 0.25 MA)
ALTERATE TELCO LINE OUTPUT POST (3.5V, 0.25 MA)
BLACK
RED
6.5V.DC (675 MA MAX)
(+) RED
DATA FROM C-COM YEL
(-) BLK
DATA TO C-COM GRN
NO. 5321 SECURITY CONSOLE OR NO. 5314 REMOTE KEYPAD
OPTIONAL (UP TO 2 TOTAL)
OPTIONAL (UP TO 4 TOTAL)
RECHARGEABLE BATTERY
BATTERY
C-COM
No. 584 (12V, 2.5 AH)
No. 41605B12
No. BP1 (12V, 5 AH)
No. 4160XB
GROUND CABINET TO EARTH GROUND. (COLD WATER PIPE OR ELECTRICAL BOX MAY BE SUITABLE IN SOME INSTALLATIONS)

SUPPLEMENTAL USER DATA:

BATTERY STANDBY CAPACITY: At least 4 hours (with fully charged 5AH battery). Total continuous current drain of connected accessories (e.g. space protection devices, smoke or combustion detectors) must not exceed 300 MA.
AC POWER LIGHT (Green): Lit when AC power is connected. Out when system is operating from standby power.
ZONE 1–3, 5 LIGHTS (Red): Lit steadily when the zone is faulted. Flashes slowly when the zone is bypassed. Flashes rapidly to denote a memory of a previous fault (that caused an alarm).
ZONE 4 LIGHT (Red): Lit steadily when the zone has an alarm fault. Flashes slowly when the zone is bypassed. Flashes rapidly to denote a memory of a previous alarm-fault (that caused an alarm).
ZONE 4 TROUBLE LIGHT (Red): Lit steadily when the zone has a trouble fault. Flashes rapidly to denote a memory of a previous trouble fault.
FIRE TEST/RESET SWITCH: Rightward momentary operation of the switch causes Fire Zone Light 4 to come on and rapid warbling siren (and/or pulsing bell) will sound until the switch is momentarily moved leftward to the RESET position. This activation also interrupts ground to any connected smoke detectors, resetting them. Use the TEST function weekly to test the fire circuit. A signal will be sent to a central monitoring agency (if used) during this test.
BURGLARY SYSTEM TEST: It is recommended that your burglary system be tested at least once per week.

Diagram 9: SUMMARY OF CONNECTIONS

TO THE INSTALLER

Regular maintenance and inspection (at least annually) by the installer and frequent testing by the user are vital to continuous satisfactory operation of any alarm system.

The installer should assume the responsibility of developing and offering a regular maintenance program to the user as well as acquainting the user with the proper operation and limitations of the alarm system and its component parts. Recommendations must be included for a specific program of frequent testing (at least weekly) to insure the system's proper operation at all times.

TO THE USER

This equipment has been tested to FCC requirements and has been found acceptable for use. The FCC requires the following statement for your information:

This equipment generates and uses radio frequency energy and, if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- If using an indoor antenna, have a quality outdoor antenna installed
- Reorient the receiving antenna until interference is reduced or eliminated
- Move the receiver away from the control/communicator
- Plug the control/communicator into a different outlet so that control/communicator and receiver are on different branch circuits.
- Move the antenna leads away from any wire runs for control/communicator.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions.

The user may find the following booklet prepared by the Federal Communications helpful:

"How to Identify and Resolve Radio-TV Interference Problems"

This booklet is available from the U.S. Government Printing Office, Washington, DC 20402. Stock No. 004-000-00345-4.

In the event of telephone operational problems, disconnect the control/communicator by removing the plug from the RJ31X/RJ32X jack. We recommend your certified installer demonstrate disconnecting the phones on installation of the system. Do not disconnect the phone connection inside the control/communicator. Doing so will result in the loss of your phone lines. If your regular phone works correctly after the control/communicator has been disconnected from the phone lines, the control/communicator has a problem and should be returned for repair. If upon disconnection of the control/communicator, there is still a problem

on your line, notify the telephone company that they have a problem and request prompt repair service. The user may not under any circumstances (in or out of warranty) attempt any service or repairs on the system. It must be returned to the factory or an authorized service agency for all repairs.

NOTE: When the system is communicating with the central alarm monitoring service, the phone line is seized and the user phones are disconnected. Under normal circumstances, the phone line seize should only be 1-2 minutes. However line seize could last up to 15 minutes if trouble exists. If this occurs regularly, contact your installer.